DOCUMENT RESUME

ED 452 029 SE 064 478

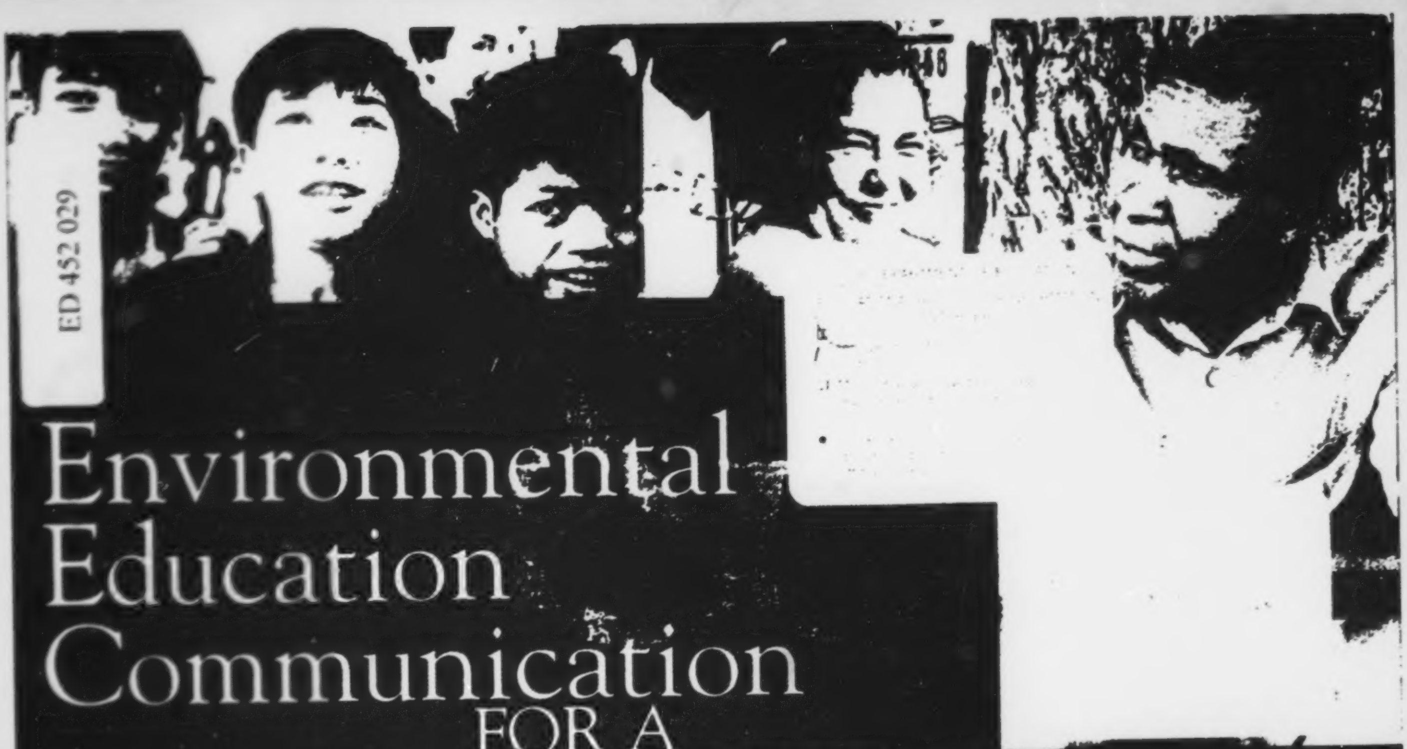
AUTHOR	Day, Brian A., Ed.; Monroe, Martha C., Ed.
TITLE	Environmental Education & Communication for a Sustainable World: Handbook for International Practitioners.
INSTITUTION	Academy for Educational Development, Washington, DC. United States Agency for International Development.
SPONS AGENCY	Academy for Educational Development, Washington, DC. United States Agency for International Development.
ISBN	ISBN-0-89492-108-8
PUB DATE	2000-00-00
NOTE	141p.; This handbook was created by GreenCOM, the Environmental Education and Communication Project of the United States Agency for International Development at the Academy for Educational Development, Washington, DC.
CONTRACT	PCE-C-00-93-00068-00; PCE-Q-00-93-00069-00
AVAILABLE FROM	Academy for Educational Development, 1825 Connecticut Avenue, NW, Washington, DC 20009; e-mail: greencom@aed.org; Web site: http://aed.www.aed.org. For full text: http://www.usaid.gov/environment/greencom
PUB TYPE	Collected Works - General (020) -- Guides - Non-Classroom (055)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Communication (Thought Transfer); *Curriculum Development; Design; *Environmental Education; Foreign Countries; Pollution; Professional Development; Program Evaluation; *Sex Differences
IDENTIFIERS	El Salvador; Environmental Awareness; Gambia

ABSTRACT

This document targets organizations and practitioners developing an environmental education or communication project. The manual presents case studies to share experiences, information, and models of working in education. There are 15 chapters in 4 sections. Section One entitled "Fundamental Concepts in Environmental Education and Communication" (EE&C) includes: (1) "GreenCOM Weaves Four Strands" (Martha C. Monroe, Brian A. Day, and Mona Grieser); (2) "Thinking about Behavior" (Orlando Hernandez and Martha C. Monroe); (3) "Participation" (Mona Grieser); (4) "Gender Matters" (Mona Grieser and Barbara Rawlins); and (5) "Addressing the Social Dimension: An Application of Systems Thinking" (Robbin R. Hough and Brian A. Day). Section Two entitled "Planning EE&C Programs" includes: (6) "Conducting a Rapid EE&C Assessment" (Richard Bossi); (7) "Formative Research" (Orlando Hernandez); (8) "Pre-Testing EE&C Products" (Martha C. Monroe); and (9) "Evaluation" (Orlando Hernandez). Section Three entitled "Conducting EE&C Activities" includes: (10) "Building Capacity through Training" (Martha C. Monroe and Nina Chambers); (11) "Media Campaigns" (Brian A. Day); and (12) "Putting People into Policy" (Raisa Scriabine and Brian A. Day). Section Four entitled "Putting It All Together" includes: (13) "El Salvador's National Environmental Education Strategy" (Jose Ignacio Mata); (14) "The Gambia Environmental Awards Scheme--Creating Environmental Awareness through Participation" (Irma Allen); and (15) "Water Conservation in Jordan: A Novel Approach to Curriculum Development" (Mona Grieser, Barbara Rawlins, and Khulood Tubaishat). (YDS)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 452 029



Environmental Education Communication FOR A SUSTAINABLE World

Handbook for International Practitioners

Brian A. Day and
Martha C. Monroe, Editors

BEST COPY AVAILABLE

Environmental Education & Communication FOR A SUSTAINABLE World

Handbook for International Practitioners

Other Books on Environmental Education & Communication from GreenCOM and the Academy for Educational Development

Related titles from the Academy for Educational Development published by New Society Publishers,
PO Box 189, Gabriola Island, British Columbia, VQR 1X0, Canada.
Website: www.newsociety.com

Fostering Sustainable Behavior: An Introduction to Community Based Social Marketing, Doug McKenzie-Mohr and William Smith, 1999

What Works: A Guide to Environmental Education and Communication Projects for Practitioners and Donors, Martha Monroe, ed., 1999

Related titles published by GreenCOM and available for free downloading at www.usaid.gov/environment/greencom

Starting with Behavior: A Participatory Process for Selecting Target Behaviors in Environmental Programs, Elizabeth Mills Booth, 1996

Making Biodiversity Conservation Happen, Pat Foster-Turley, 1996

Putting People into Policy, Raisa Scriabine, 1996

Fostering Sustainable Cities, Paula Tarnapol Whitaker, 1997

This book, *Environmental Education & Communication for a Sustainable World*, is also downloadable free from the internet at www.usaid.gov/environment/greencom.

Environmental Education & Communication for a Sustainable World is also published in Spanish as *Educación y Comunicación Ambientales para un Mundo Sustentable: Manual Internacional* by Grupo de Estudios Ambientales, Mexico D.F., Mexico and is available on the internet at the address above.

Environmental Education & Communication FOR A SUSTAINABLE World

Handbook for International Practitioners

Brian A. Day and
Martha C. Monroe, Editors

This handbook of environmental communication strategies was created by GreenCOM, the Environmental Education and Communication Project of the United States Agency for International Development at the Academy for Educational Development, Washington D.C.

The cover photos represent people from three continents—Asia, South America, and Africa—who are working toward an environmentally sustainable world.

This publication was prepared by GreenCOM, the Environmental Education and Communication Project of the U.S. Agency for International Development (USAID) for USAID. The findings, conclusions and recommendations expressed in this document do not necessarily reflect the official viewpoint of USAID.

Funded by USAID Contract Numbers PCE-C-00-93-00068-00 and PCE-Q-00-93-00069-00

Copyright © 2000 by the Academy for Educational Development

All rights reserved. No part of this book may be reproduced or transmitted in any form without the permission in writing from the publisher. The publisher grants permission to environmental educators to copy pages or to electronically transmit portions of this book for educational use in classrooms or seminars with credit given to the authors and publisher. No charge may be made for this material.

Photo credits Cover: left, Les Stone/Sygma; center, GreenCOM; right, Robert Grossman/Sygma. All text photos (pages 98, 99, 100, 116, 117, 118, 128, 129): GreenCOM.

Academy for Educational Development
1825 Connecticut Avenue, NW
Washington, DC 20009
USA
email: greencom@aed.org
websites: AED,*www.aed.org*; GreenCOM,*www.usaid.gov/environment/greencom*

ISBN 0-89492-108-8

Printed in the United States of America on recycled paper using soy ink

Table of Contents

Acknowledgements vii

Foreword ix

Preface xi

About this Book xiii

About GreenCOM xv

About AED xvii

Section 1
Fundamental Concepts in Environmental Education and Communication (EE&C) 1

Chapter 1
GreenCOM Weaves Four Strands 3
Martha C. Monroe, Brian A. Day, and Mona Grieser

Chapter 2
Thinking about Behavior 7
Orlando Hernández and Martha C. Monroe

Chapter 3
Participation 17
Mona Grieser

Chapter 4
Gender Matters 23
Mona Grieser and Barbara Rawlins

Chapter 5
Addressing the Social Dimension:
An Application of Systems Thinking 33
Robbin R. Hough and Brian A. Day

Section 2
Planning EE&C Programs 39

Chapter 6
Conducting a Rapid EE&C Assessment 41
Richard Bossi

Chapter 7
Formative Research 47
Orlando Hernández

Chapter 8
Pre-testing EE&C Products 57
Martha C. Monroe

Chapter 9
Evaluation 61
Orlando Hernández

Section 3
Conducting EE&C Activities 67

Chapter 10
Building Capacity through Training 69
Martha C. Monroe and Nina Chambers

Chapter 11
Media Campaigns 79
Brian A. Day

Chapter 12
Putting People into Policy 85
Raisa Scriabine and Brian A. Day

Section 4
Putting It All Together 89

Chapter 13
El Salvador's National
Environmental Education Strategy 91
José Ignacio Mata

Chapter 14
The Gambia Environmental Awards Scheme—
Creating Environmental Awareness
Through Participation 105
Irma Allen

Chapter 15
Water Conservation in Jordan:
A Novel Approach to Curriculum
Development 121
Mona Grieser, Barbara Rawlins,
and Khulood Tubaishat

Index 131

Acknowledgements

This manual embodies the thinking and hard work of many authors, contributors, editors, and production people. All of these individuals deserve our utmost thanks and appreciation for sharing their skills.

Many of the authors were involved in the conceptualization of the activities that form GreenCOM's base of experience in 28 countries since 1993. Orlando Hernández, Mona Grieser, Rick Bossi, Irma Allen, Elizabeth Booth, Cheryl Groff, and José Ignacio Mata have helped our programs grow to encompass their specialties in behavior change, formative research, gender, and participation.

We would like to recognize former GreenCOM staff involved in both supporting this work and producing this manual: Mary Sebold, Barbara Rawlins, Reva Schwartz, Paulina Espinosa-Puig, Denise Mortimer, Matilda Macklin, Summer Gibbs, and many others.

Several individuals deserve special recognition for their endless hours of editing and fine-tuning: Carole Douglis, Jestyn Portugill, Mary Paden, Peter Templeton, and Peter Spain. Their assistance in turning phrases, condensing ideas, and telling stories has been greatly appreciated.

We would like to recognize Kate Barba and Mike Philley of the U.S. Agency for International Development for their review, comments, and support of this pioneering project from the beginning. USAID had the foresight to create and fund GreenCOM, and deserves credit for developing increased awareness and understanding of environmental issues, policies, and behaviors in many corners of the world.

This book would not have been published without the work of Mary Paden, who oversaw the final edits, design, and production. Maureen Daley groomed the final manuscript and worked with the designers and printer. The index was produced by Indexing Partners of Washington, D.C. The English edition was designed by The Magazine Group of Washington, D.C. and printed by Jarboe Printing of Washington, D.C. The Spanish edition was developed by Margot Aguliar of Grupo de Estudios Ambientales of Mexico D.F., Mexico.

We have been pleased and proud to be associated with the Academy for Educational Development during the life of this project, and thank them for their overall support of GreenCOM and this book in particular.

As the editors of this book, however, we hold the responsibility for its content and presentation. We hope you will find it valuable as you enhance your work in environmental education and communication.

Brian A. Day and Martha C. Monroe

Foreword

Environmental Education & Communication for a Sustainable World: Handbook for International Practitioners reminds us that environmental problems cannot be resolved by technology alone. We must consider the socio-economic roots of environmental problems.

Pollution, waste of energy, the destruction of the environment—these problems have everything to do with behavior, and the roots of behavior lie within the beliefs and attitudes of our population. Today we suffer from the absence of a global ethic encompassing the world environment, an ethic that promotes attitudes and behaviors consonant with humanity's critical role in the biosphere.

There can be no hope of finding viable solutions to environmental problems unless and until education and communication at all levels is suitably modified to enable people from all walks of life to comprehend the fundamental interrelationships between humans and their environment.

This publication is particularly valuable in that it links cross-cultural theory with examples drawn from various regions of the world. It is noteworthy for its breadth and specificity.

I recommend this document for any organization or practitioner developing an environmental education or communication project nationally or internationally.

William B. Stapp
Ann Arbor, Michigan

Preface

Synergism is defined in Webster's Dictionary as "the interaction of discrete agents such that the total effect is greater than the sum of the individual effects."

Increasingly, USAID's global field support program in Environmental Education and Communication (GreenCOM) has been asked by our missions to assume the lead in using communication to create synergy between and among development activities. GreenCOM has worked in 28 countries, across sectors and with a wide range of partners, to demonstrate how a better understanding of human behavior can be the catalyst for change that not only protects the environment, but also creates economic opportunity and builds democratic governance.

By focusing on people—as individuals, in households and communities, as members of organizations and institutions—GreenCOM has helped diverse stakeholders discover common needs, overcome resistance to change, and act together to improve the quality of their lives.

The environmental education and communication strategies, methods, and tools described in this document have been forged in a rich medium of USAID field programs and activities. GreenCOM has worked in tandem with projects in biodiversity, forestry, water and coastal resources, urbanization, energy, and even climate change to bring people at all levels more fully into the process of visioning and creating a sustainable future. Many examples and case studies from this unparalleled experience are described in the pages that follow. I encourage readers to heed the lessons from GreenCOM and to reflect on the myriad ways that an exploration of human nature can be applied to the issues of international development.

It would be inappropriate to conclude these remarks without mentioning Bill Stapp. I have had the wonderful privilege over the years to observe his courage and his compassion. His life's work, and the changes that he has helped bring about that have benefited so many people, and the world which he loves, speak for themselves. They do not require witness or testimony. They do call forth, from me, as from many others, expressions of deep and sincere gratitude. Bill Stapp, friend, thank you so very much.

David Hales
Deputy Assistant Administrator
Global Environment Center
U.S. Agency for International Development

About this Book

This manual was designed for those who make policy and design programs that affect people and the environment. The staff of GreenCOM, the U.S. Agency for International Development's Environmental Education and Communication Project, have arranged the following chapters and case studies to share experiences, information, and models of working in education and communication.

Section One, *Fundamental Concepts in Environmental Education and Communication (EE&C)*, provides an orientation to four theoretical perspectives that have shaped GreenCOM's approach to environmental education and communication projects: behavior change, participation, gender, and systems thinking. Each has its own research framework and following, yet each contributes an important set of ideas to environmental education and communication activities.

In Section Two, *Planning EE&C Programs*, a variety of GreenCOM experiences illustrate the basic process of designing education and communication programs: needs assessment, formative research, pre-testing, and evaluation. Taken together they form a reliable and well-tested model for program development.

Section Three, *Conducting EE&C Activities*, looks at staff and participant training workshops, mass media campaigns, and how EE&C can affect public policy.

Section Four, *Putting It All Together*, highlights several successful countrywide strategies from GreenCOM's field experience. These cases illustrate some of the diverse approaches to building capacity and planning and implementing environmental education and communication. The projects involved training, policy initiatives, awards schemes, curriculum development, and multifaceted communication campaigns.

About GreenCOM

GreenCOM is the Environmental Education and Communication Project of the U.S. Agency for International Development. In 1993, the Agency launched GreenCOM to work in tandem with other projects, across sectors and regions, to help achieve a range of strategic environmental and education objectives.

GreenCOM goes beyond "raising awareness" to help individuals and groups acquire knowledge and skills to change behaviors around specific environmental issues. In many cases, people are already aware of the environmental issues that involve them. They may know they should protect a watershed, but they do not or cannot act on that knowledge. Policies, lack of access to technology, a lack of economic alternatives, and other factors may prevent them from engaging in environmentally positive practices.

GreenCOM is laying a broad foundation for critical problem solving and long-range resource planning through environmental education; it is promoting more rapid, targeted behavior change through communication and social marketing; it is working toward long-term sustainability through the integration of education and communication capacities within local institutions.

GreenCOM addresses the specific roles that men and women play in natural resource management. In some cultures, for example, women have an unrecognized wealth of indigenous knowledge about environmentally sustainable technologies and practices. Their work lies at the epicenter of change, where population growth, food, fuel, and the environment are linked. Appropriate EE&C audience segmentation strategies will ensure the full consideration of gender opportunities and prevent additional constraints for women.

GreenCOM achieves these goals through four program components:

FIELD SUPPORT

The most significant component of GreenCOM provides EE&C support to USAID field operations and projects, Regional Bureaus, and Missions as they carry out their environmental programs. GreenCOM has provided expertise to ongoing environmental projects in a total of 28 countries, including El Salvador, Egypt, The Gambia, Nicaragua, Nepal, Mali, Panama, Jordan, and the Philippines, among others.

APPLIED RESEARCH

Practical, field driven research is integral to the entire range of GreenCOM activities. In working with people, GreenCOM research emphasizes understanding the audience's knowledge, attitude, belief, and behavioral characteristics. Qualitative and quantitative research using a mix of methodologies is central to how the GreenCOM team helps program managers design, implement, and understand effective EE&C strategies.

INFORMATION EXCHANGE

Sharing state-of-the-art methodologies and materials with colleagues around the world is crucial in this time of diminishing resources. To bridge the gaps created by geography and uneven distribution of technical resources, GreenCOM established the EE&C Resource Center. It contains over 4,000 volumes of environmental education resource materials, newsletters, reports, videos, and curricula from around the world, and is accessible on-line through GreenCOM's website at www.usaid.gov/environment/greencom. GreenCOM produces *Human Nature*, a newsletter primarily for practitioners, featuring EE&C activities around the world. *Human Nature* is published in three languages and is mailed to 4,000 subscribers. It is also available online.

INFORMATION SYNTHESIS AND DISSEMINATION

GreenCOM sponsored two International Symposiums, bringing together international professionals from a variety of innovative and successful EE&C projects. The first workshop resulted in a commercially published book, *What Works: A Guide to Environmental Education and Communication Projects for Practitioners and Donors*. The second workshop, *Creating Environmentally Sound Policy: How Communications Can Help Make it Happen*, is summarized in the September 1999 issue of *Human Nature*. GreenCOM's own reports and documents are made available to interested organizations and individuals around the world via the internet.

14

About AED

AED is an independent, nonprofit organization committed to solving critical social problems in the United States and throughout the world through education, social marketing, research, training, policy analysis and innovative program design. Currently more than 225 programs and projects are being conducted in the United States and 89 countries in Africa, Asia, Europe, Latin America and the Caribbean, the Middle East, Australia, and North America. Founded in 1961, AED focuses on HIV/AIDS prevention programs, disabilities services, child survival initiatives, education reform, water conservation and behavior change related to the problems of sustainable development and environmental protection. Our work is supported by a mix of foundations, government agencies, development banks and other governmental and nongovernmental organizations.

Section 1

Fundamental Concepts in Environmental Education and Communication (EE&C)

Chapter 1

GreenCOM Weaves Four Strands

Martha C. Monroe, Brian A. Day, and Mona Grieser

Knowledge alone doesn't harm or help the environment.

Human attitudes don't harm or help the environment.

Human behaviors, on the other hand, have greatly harmed, yet hold a great deal of hope for helping, the environment. Those of us who work for environmental sustainability must address human behavior.

Behaviors, of course, must be supported by knowledge and attitudes. But research in the field of environmental education and in commercial marketing have shown that there is no cause-and-effect progression from knowledge to attitude to behavior as educators have long believed (Hines, Hungerford, and Tomera, 1987). In fact, the relationship among these three things is puzzling.

Research shows that people who take positive environmental actions often have no better understanding of the problem than those who don't act. In the United States, national opinion polls show consistently strong positive attitudes toward the environment, yet most of these Americans still won't do simple things to conserve energy and water. What does cause people to act? What can we as educators say or do to get people to behave in environmentally responsible ways?

The Environmental Education and Communication Project (GreenCOM) was started six years ago by USAID to apply a set of social marketing and communications techniques that have proven successful in the field of health to the field of environment. GreenCOM has had the opportunity to make use of some of these new strategies in 28 countries. This book shares both the theories behind the communications techniques and some of the practical results.

GreenCOM draws on four complementary disciplines and works closely with practitioners in these four fields: social marketing, environmental communications, environmental education, and public participation. Many GreenCOM projects, as described in the case studies in chapters 13–15, blend elements of these fields into workable methods on the ground. But the four fields do not simply offer a cafeteria of strategies; each has its own framework and logic. This chapter gives a brief background on these four fields that form the strands of GreenCOM's strategies.

STRAND 1: SOCIAL MARKETING

In a relatively new field collectively referred to as *social marketing*, models derived from commercial marketing and behavioral psychology are used to encourage new (healthier, more environmentally friendly) behaviors in groups of people. Social marketing relies on behavior modification theory as its base and identifies key factors that determine the behaviors of target audiences. These "determinants" may operate at the individual, family, community, or system levels. This framework suggests communicators consider a range of ways of making the new behavior desirable and accessible to the target population by looking at barriers to, and benefits of, their adoption.

GreenCOM uses a form of "social marketing" that involves a simple five-step process that we feel will bring about environmental behavior change. It is divided into sections corresponding to the five basic steps of social marketing (Day & Smith, 1996).

The first step—Assessment—identifies why the people you want to influence behave the way they do. People almost always have good reasons for doing what they do. They are not stupid nor are they often irrational. People need to be empowered to take action. Some small fraction of the audience may already carry out the behaviors we want a larger portion of the population to do. Knowing what people think and why they act the way they do can pinpoint a problem and identify the right way to solve it. What are the differences between doers and non-doers? When possible we want to build on what people are already doing correctly. We are looking for opportunities to develop appealing messages that make the desired behavior sound fun and easy. We are also learning what their sources of information are so we can select a medium for communicating these messages.

In the design and planning step, we take what we learned from the assessment step, compare it to our goals, and design our message. Based on what we learn about doers and non-doers we attempt to identify what might motivate people to stop or start a specific behavior—conserve water, dispose of waste correctly, or take steps to protect critical wildlife habitat. When designing a message we try to remember to find an incentive for people to do (or not do) the behavior. Every person in one form or another asks, "What's in it for me?" Our message must clearly answer that question. Applied research provides insights into the benefits and barriers that people perceive about the proposed behavior. We conceive a message and prepare a draft script, storyboard, or rough tape to convey the message in terms that people can readily relate to. But we do not go into production yet.

In the pre-test and revise stage we actually test our draft campaign items with a small subset of the target audience. In one project GreenCOM worked on in Egypt, we took a draft message out to 40 people to see if the message was effective. (The tested message was what the "experts" believed people should hear rather than one based on marketing research.) We found that 39 out of 40 people with whom we pre-tested the materials did not understand the message. Pre-testing can save enormous amounts of money and time.

After revising, and even re-pre-testing if necessary, it is time to implement.

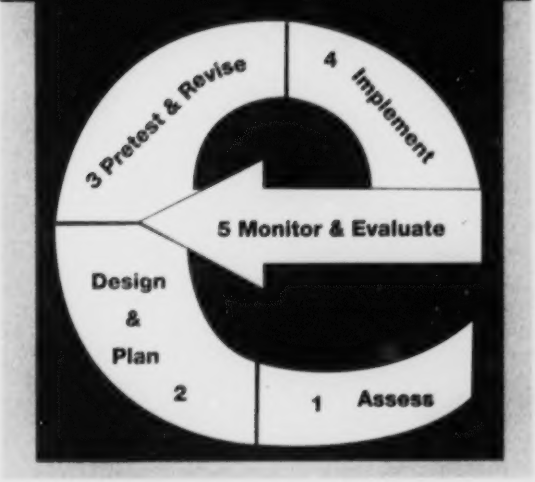
Here we look back at our research or where our audiences get information and we deliver our messages through those channels.

Monitoring and evaluation are critical. Changing behavior doesn't happen overnight. As people are exposed to new behaviors they often seek additional information. Campaigns need to be reworked to speak to those needs. Which media are being helpful or effective? Do we need to change the media mix? Figure 1.1 shows step 5 pointing back to a point between steps 2 and 3. Progress is made in a spiral with constant revisions, new pretests, and further evaluations.

STRAND 2: ENVIRONMENTAL COMMUNICATION

Drawing on social marketing theories, described above, as well as experience in communication programs in other sectors (e.g., health, family planning, and AIDS), environmental communicators create strategies for reaching certain audiences, they develop messages and select the appropriate media to reach these audiences.

Figure 1.1 The Steps of Social Marketing for Creating Behavior Change



The goal is to instill in learners the knowledge about the environment, positive attitudes toward the environment, competency in citizen action skills, and a sense of empowerment.

Communications campaigns are varied, multifaceted, highly planned, and strategically assembled media symphonies designed to increase awareness, inform, or change behavior in target audiences. A model for designing communications campaigns uses these four steps:

1. First, set a clear goal. What exactly do we want people to do? Which behavior do we want to focus on and why? Environmental practices often involve a myriad of behaviors. Which of these should be the focus of our efforts?
2. Then select the audience that can have the most impact and focus on it.
3. Learn that audience's "media diet." What media does the target audience get its information from—radio, TV, newspaper, community bulletin boards, their doctor, boss, or children?
4. Only then can we focus on message. A message written for a community bulletin board is quite different—and could be more effective in changing behavior— than one written for TV.

These four steps: Goal, Audience, Medium, Message must stay in order.

STRAND 3: ENVIRONMENTAL EDUCATION

GreenCOM also draws heavily on the tradition of environmental education. Since the 1970s, environmental education has been characterized as a process that prepares citizens to prevent and solve environmental problems. Delegates to the 1977 United Nations Intergovernmental Conference on Environmental Education in Thbilisi, Georgia in the former USSR acknowledged the various aspects of environmental education when they agreed upon the following definition:

> *Environmental education is a process of developing a world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (UNESCO, 1978).*

The delegates identified five objectives of environmental education programs:

Awareness—to acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge—to gain a variety of experiences in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes—to acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection.

Skills—to acquire the skills for identifying and solving environmental problems.

Participation—to encourage citizens to be actively involved at all levels in working toward resolution of environmental problems (UNESCO, 1978).

Environmental education is mission-oriented. A good environmental education program does not stop with the presentation of information, but helps learners wrestle with values and gain the skills to take relevant and responsible action.

Formal environmental education differs from social marketing and environmental communications in that it does not always directly target specific behaviors. It teaches students "how to think" not "what to think." Thus the goal of environmental educators is to help learners form the capacity to collect and analyze information, make good judgments, and participate fully in civic life. Because research shows that people who take action not only have some knowledge and awareness of the problem they are addressing, but also knowledge of *how* to effect change, environmental educators often stress civic and public participation skills. The goal is to instill in learners the knowledge about the environment, positive attitudes toward the environment, competency in citizen action skills, and a sense of empowerment.

Environmental education materials and programs reflect an evolution from science-based information to skill-based participation in problem solving. In some nations, environmental education objectives nicely complement education reform efforts to make subject areas more relevant to local situations and to prepare students to become responsible citizens.

Environmental education activities are easier to start in the nonformal education system, through youth group activities, religious communities, extension visits, agency outreach materials, and field visits to museums and zoos. Environmental educators develop and implement programs that engage learners in discovering information and developing skills to convert that information to meaningful practice.

In some nations, environmental education has a third important aspect: training professionals to consider the environment in their work. Through training, engineers, architects, business leaders, legislators, planners, and other decision-makers in society come to understand how environmental principles and concepts affect their work in housing, water treatment, transportation, urban development, automobile manufacturing, and other spheres (see Chapter 10).

STRAND 4: PUBLIC PARTICIPATION

The growing democratization around the world clearly shows the growing desire of people to participate in decisions that affect them. In Eastern Europe, the former Soviet Union, Latin America, Asia, and Africa the news of the past two decades has been of increased control of people over their governments.

Participation by local residents and stakeholders changes policy. It also makes policy more likely to be effective. The need for public participation is a basic tenet of GreenCOM's strategies. And communication and education techniques can enhance the effectiveness of people or groups seeking to participate.

The complexity and specificity of environmental issues also makes participatory techniques important tools. Today it is less likely that outside experts will have the answer.

With a growing community wariness of consultants, governments, and authority in general, it is paramount that residents design their own communication strategy and messages. Their participation not only improves the program and adds credibility, but also strengthens their skills to do similar work in the future (see Chapter 3). Participatory materials development workshops and participatory research efforts are but a few of the new tools that ensure greater participation by stakeholders in environmental communication activities. The result can be improved quality in a considerably shorter time than would be needed by experts to familiarize themselves with issues, actors, and behaviors.

Participation in communication activities is not just a matter of including local stakeholders in the design of a project, but also partnering with them in the collection of formative research data (see Chapter 6), decision making, and program implementation. The degree to which participation increases local capacity to initiate and manage similar programs at a later time may be the true measure of success (see Chapter 13).

These new approaches are also changing the nature of the communication tools themselves. With greater authority for managing programs devolving to decentralized agencies and community groups, larger numbers of people are being trained to use new communication techniques effectively. Their techniques include: community resource centers, community radio, and community websites.

References

Day, B.A. and W.A. Smith. (1996.) The Applied Behavior Change (ABC) Framework: Environmental Implications, Advances in Education, pp. 5–9.

Hines, J.M., H.R. Hungerford and A.N. Tomera (1986–1987). "Analysis and synthesis of research on responsible environmental behavior: A meta analysis." *The Journal of Environmental Education* 18(2), 1–8.

UNESCO. (1978.) *Final Report, Intergovernmental Conference on Environmental Education*, organized by UNESCO in cooperation with UNEP, Tbilisi, USSR, 14–26.

Chapter 2

Thinking about Behavior

Orlando Hernández and Martha C. Monroe

One woman sorts household waste for recycling; the other throws it into a garbage container bound for the landfill. Why?

Do non-recyclers need more information in order to recycle? Do they need a monetary incentive? Or do they simply not understand the link between trash and groundwater quality? Are recyclers motivated by the wisdom from frugal grandparents, or peer pressure from their neighbors?

If you are in charge of a recycling program, you will think long and hard about these two behaviors. This chapter is meant to guide thinking about recycling—or any other activity to improve the environment—toward an effective and efficient program.

For years, communicators have tried to identify the factors that determine behavior (determinants of behavior) to explain why people behave differently. A variety of theories have been proposed, but no one model explains all human behavior.

Why does one woman recycle when the other doesn't? Perhaps one woman perceives the "cost" of recycling (in time, convenience, or space) to be inconsequential, while the other finds it overwhelming. Or perhaps the recycler gets support for her efforts from people she values—family, neighbors, or community leaders—while the non-recycler does not. Maybe the recycler is willing to take the time, effort, and space to do something she believes to be right, but the non-recycler does not have that discipline. These three broad categories—external barriers, social personal norms, and personal values—form the basis for considering a variety of determinants of behavior.

Since in the real world these categories overlap and interact in patterns that vary from person to person, issue to issue, and place to place, it is not practical to defend one "best" theoretical model for developing behavior-change programs. In this chapter a variety of theories that explain different facets of behavior will provide us with a "mosaic model" to use in designing EE&C programs.

The design of any activity should include the basic steps outlined in Chapters 6–9, beginning with the needs assessment and formative research phases. But to ask the right questions and to then build a program that will address the most important determinants of behavior, start with this simple question: "Why do you do that?"

FOCUSING ON BEHAVIORS

Successful EE&C focuses on behaviors for several reasons:

1. *The behaviors of individuals have environmental repercussions.*

To change the state of our environment, we must learn how to encourage individual behaviors that are environmentally sound and alter those that are damaging to the environment.

2. *Awareness that an environmental problem exists does not necessarily lead to behavior to fix the problem—as we saw with our two women above.*

Often, EE&C interventions focus only on developing awareness about environmental problems. But awareness is only a first step. Awareness that forests are diminishing does not get enough forest users to adopt appropriate silviculture practices or to reduce the consumption of firewood. Awareness that sea turtles are diminishing does not convince enough people to harvest fewer sea-turtle eggs.

Many factors other than awareness influence behavior, and those factors must be understood. An analysis of the behaviors that individuals currently perform, both beneficial and detrimental to the environment, is the starting point to understanding which programs should be supported and which changed.

3. *Adopting this behavioral approach makes EE&C activities more focused and targeted, and ultimately more effective.*

Resource users know best how rapidly their resources are diminishing. But they may not have the ability to correct the problem—they may need alternative specific behaviors, training in the skills to perform these behaviors, and then the opportunities to use them. Identifying the effective alternative behaviors will help identify the skills and training they need. For example, an Andean program attempting to stabilize agriculture and prevent encroachment into forest areas suggested that farmers limit burning when preparing the ground for cultivation. Farmers knew that biodiversity was affected by clearing more land and understood the importance of burning only the land they intended to plant. But they needed the skills to burn small patches of land in a controlled manner; skills such as opening fire breaks and burning into the wind. Training in these skills then supports environmentally friendly behaviors.

4. *EE&C techniques work well in involving multiple stakeholders—organizations, agencies or individuals.*

For example, urban waste collection involves several stakeholders: waste generators, waste handlers, waste disposers, neighborhood associations, government technicians, elected local and central government officials, and residents. The solution to waste-collection problems needs to involve all these actors. Residents, for example, need to recycle, to reduce the amount of waste transported from the neighborhoods to the landfill. Neighborhood associations need to promote recycling and help households transport their waste to a central collection point. This may require hiring waste collectors and charging for services provided to households. Drivers of municipal garbage trucks need to keep good records for their vehicles in order to prevent vehicle breakdown and avoid service disruption. Elected municipal officials need to obtain funds to increase staff assigned to waste collection. Identifying behaviors of each stakeholder helps to define action plans and distribute responsibilities accordingly.

WHAT IS A BEHAVIOR?

Behavior is what people do. People perform a host of environmentally appropriate and inappropriate behaviors everyday.

GreenCOM defines behavior as a single, observable action performed by an individual. Although the behavior may be performed by habit, it could also be the outcome of a conscious decision. *Behaviors* are distinguished from *practices*, which are a series of related behaviors. For example, recycling solid waste is an environmental practice that can be broken down into many, separate, observable, and measurable behaviors:

- Separating glass, cans, paper and organic material into different containers
- Cleaning, tying or preparing recyclables for pick-up
- Storing recyclables in appropriate containers prior to pick-up
- Putting recyclables on the curb on appropriate days for pick-up

Correct agro-chemical use is another environmental *practice*, made of separate, observable, measurable *behaviors*. Behaviors associated with the use of Pesticide X may include:

- Storing Pesticide X out of the reach of children and animals
- Using the correct amount of water to mix the pesticide
- Wearing shoes that cover the foot while mixing pesticide
- Wearing shoes that cover the foot while applying pesticide
- Applying Pesticide X only when there is no wind

When defining a behavior, Ajzen and Fishbein (1980) have suggested that behaviors have four distinct elements: action, target, context and time.

The *action element* is the easiest to understand because actions are associated with verbs. In the previous list concerning pesticides, the actions were *store, use, wear,* and *apply.* In another example regarding a project to restrict beach use in a protected area during turtle nesting season, *patrolling* the beach in a wildlife refuge to prevent poaching is different from *reporting* violators of beach boundaries. Both behaviors relate to protected area management, but they are different behaviors.

The *target element* of behavior refers to the person or group affected by the action. Continuing with the beach protected area example: reporting cousins, grandfathers, or daughters is different from reporting unrelated violators. When the target changes, so does the behavior.

With respect to *context,* reporting violators of beach boundaries to the police is different from reporting them to a village oversight committee. Context refers to how the action is done.

The *time element* of behavior implies that patrolling the beach during the night or on weekends is a different behavior from patrolling the beach during the day or workdays.

These four elements of behavior may be helpful in specifying the behaviors that should be targeted in an education or communication project. For example, turtle-egg poachers may engage in a number of poaching behaviors that are relatively different from each other and may require vastly different messages or techniques to alter. Consider the following:

- Poachers extract eggs from a beach in a protected area
- Poachers extract eggs from an unprotected beach
- Poachers extract eggs from sections of a beach where eggs are likely to be eaten by natural predators
- Poachers extract eggs from a beach likely to be eroded away
- Poachers extract eggs from a beach regularly trampled by cattle
- Poachers take eggs laid during an *arrivada**

Each one of these behaviors may have different environmental impacts, different rationales, and different predictors.

Defining specific behaviors is the crucial first step for planning an education or communication program. Without specific behaviors, a message campaign on conserving fuelwood would easily become mired in confusion and excuses for both the message recipient and the campaign planner. "Who should conserve fuelwood?" someone might think. "Certainly I'm not the problem, since I only boil water in the morning." "Should the campaign focus on the type of stove?" a planner will wonder. "Why doesn't information about tree growth rates translate into fuel conservation?" foresters will ask. A specific behavior helps focus the activity on the audience and the context for the behavior.

On the other hand, environmental issues are associated with so many specific behaviors that it may be helpful to group them into categories and seek common or underlying behaviors that could form the focus of an educational or communication program.

ENVIRONMENTALLY FRIENDLY AND UNFRIENDLY BEHAVIORS

Education and communication programs may develop different strategies for helping people begin or strengthen environmentally friendly behaviors, or stop environmentally unfriendly behaviors. Each strategy may require a different set of motivators, depending upon the context. The examples of recycling behaviors discussed earlier are illustrations of environmentally friendly behaviors, while egg poaching is an environmentally unfriendly behavior.

Pollution, illegal logging, illegal fishing, and destructive farming methods are only a few of the common problems confronted by environmentalists and environmental educators. Unfortunately, these unfriendly behaviors often have short-term economic and political payoffs that encourage people to continue. Indeed, people don't do things without a reason. Additional measures may be necessary to stop or change them, such as legislation and enforcement. Most evidence shows that enforcement is much easier if accompanied by an appropriate education campaign to explain the need for the new legislation.

---

*"*Arrivada*" is a term used in Central America for massive arrivals of nesting sea turtles to select beaches. These events occur from July to January. Olive ridley sea turtles are one of the few species that nest in this manner.

A thorough needs assessment can determine whether EE&C strategies should focus on environmentally unfriendly behaviors, and can suggest strategies to support the transition from damaging to friendly behaviors. Usually a satisfactory alternative must be offered to provide the target audience with the food or finances they obtain. Offers of opportunities to experiment with new techniques for growing food or preventing pollution may generate an outpouring of creative problem solving.

CRITERIA FOR SELECTING FEASIBLE BEHAVIORS

EE&C programs can seek to address an enormous number of specific behaviors. Not only could this be time-consuming and inefficient, but also some behaviors may be better suited to intervention than others. GreenCOM has developed a set of criteria to help select and prioritize "feasible" behaviors to include in EE&C interventions. This scale has been adapted from the health field (Graeff, Elder and Booth, 1993; Green, Kreuter, Deeds and Partridge, 1980) and is supplemented by the work of Ray DeYoung in the field of conservation behavior (1993). More guidelines for defining these target behaviors can be found in Chapter 7.

Potential for Impact on the Problem

Prior to launching an EE&C intervention, ask yourself whether the behaviors to be promoted make sense technically. For example, for farmers to make a living in arid areas, appropriate irrigation practices are crucial. Although night irrigation is often suggested as a solution, studies from some desert countries show that irrigating at night may not save as much water as other, more feasible options. So, selecting the behaviors that make technical sense is important. It is difficult to rebuild credibility if the previous campaign was technically incorrect.

Sometimes, a group of technicians may not agree on the "best" behavior or environmental solution. In these cases, you need to field test solutions in relevant and appropriate settings. Water conservation techniques in the United States may not conserve water in Jordan, because water pressure may be reduced, or other elements in the system are different. Evidence from field trials is essential to decide on appropriate behaviors.

Exploring solutions from the technical perspective also implies that every relevant arena should be considered. Most environmental issues are connected to other problems; so one particular solution may create more problems. Before choosing a behavior, determine if that behavior might have negative consequences in other areas. For example, in El Salvador a behavior that environmentalists considered appropriate was "heating the family's food only once a day." This practice would limit the amount of firewood consumed and reduce deforestation. However, reheating children's food immediately before consumption is necessary to reduce the contamination that causes infant diarrhea. Although once-a-day-cooking would have a positive impact on deforestation, this behavior could have a devastating effect on infant health.

Immediate and Obvious Consequences for Behaviors

Behaviors that have immediate positive consequences or bring tangible benefits are likely to be adopted more easily than those that generate distant benefits. For example, families who conserve water may perceive the immediate consequence of a lower water bill. It would be more difficult for families with their own well to perceive the effects of water conservation at the end of the month. By

24

the same token, supporting fish hatcheries that stock fish for sportfishing is an easier behavior for fishermen than supporting legislation that improves fish habitat.

Similarly, while environmentally unfriendly behaviors may be stopped if appropriate sanctions are defined, made public, and enforced; it may be easier and more effective to substitute an environmentally friendly behavior than to completely eradicate an unfriendly one.

People like to get quick feedback from their behavior. Programs that seek changes for long-term, far-away, tenuous benefits (e.g., reducing automobile use to prevent global climate change) are less successful than programs that provide economic or health benefits within a year. Consider choosing behaviors that offer feedback mechanisms, or designing proxies for feedback that will encourage a similar behavior (e.g., car exhaust testing to curb air pollution).

Compatibility With Cultural Norms or Current Practices

Behaviors proposed also need to make socio-cultural sense. For example, in many cultures, high consumption of electricity and water is an acceptable social norm, especially among the middle and upper classes. People feel that they have worked hard to obtained their income and deserve to consume all the resources they can afford. They may construe conserving electricity and water as incompatible with their socio-cultural norms.

Cost: Time, Money, and Effort

Avoid behaviors that are costly for target audiences. Cost may be measured in terms of time, money, and effort.

Recycling, for example, could have a high cost in terms of time—sorting, storing, bagging and disposing of waste. In this case, other ways for reducing the time demands need to be identified.

The behaviors chosen also need to make financial sense. For example, residents may refuse to recycle waste if the municipal program requires them to forego the income they would have received by selling materials to scavengers. Consequently, organizing a recycling program with scavengers (an existing recycling program of sorts) may be more acceptable than organizing one with municipal waste collectors. Either way, recycling happens, but the scavenger approach is more attractive to the public and therefore gets more cooperation.

Complexity: Keep it Simple

Proposed behaviors need to be simple. Participants may need to break them into elements or steps to learn or practice the skills one at a time. For example, many of the behaviors required for sustainable agriculture, such as contour farming, live fences, composting, and crop rotation, are much more complex than those performed with slash-and-burn agriculture. Adopting these new practices will require a significant commitment by traditional farmers.

Generality: One Thing Leads to Another

Often, one behavior change will lead to another. It may be easy for people to generalize from conserving water in the household garden to conserving bath water. However, it is not generally accepted that people generalize from one *issue* to another (successfully conserving energy doesn't lead to reducing waste). Whether one behavior leads to another depends on which behaviors are chosen, and how behavior change information is presented.

Durability

Some behaviors "stick" better than others. If an education or communication campaign succeeds in changing a certain behavior, one would hope that it is durable to the extent that, even after the program is over, people will continue to perform the behavior. Clearly, durability is also a function of changes in the community, the environment, the communication message, the feedback system, and in a variety of other dimensions. Encouraging these supportive changes is the mark of a successful, durable, program.

Individual Versus Group Behaviors

Individuals can perform some environmental behaviors in the privacy of their homes, such as installing faucet flow restrictors to conserve water, or insulating their home to conserve energy. A program to introduce and support these behaviors would be aimed at homeowners; and appropriate feedback mechanisms could be directed at them.

Other environmental conditions require that a *group* of people perform a behavior in order to see real change, such as clean-up of a waterway, consumer boycotts, or an awareness parade. A program to stimalate group behavior would be designed differently from one aimed at individual behavior, with appropriate feedback to reflect the group effect.

INVOLVEMENT OF STAKEHOLDERS IN THE SELECTION OF TARGET BEHAVIORS

Because behaviors targeted through an EE&C intervention should be not only technically sound but also socially, culturally and economically viable, the stakeholders—the beneficiaries of those interventions—need to be involved in selecting those behaviors. They can be asked about the extent to which technically appropriate behaviors can be adopted. They can also be observed and then asked to explain why they perform some behaviors and not others. Or, they can help decide in group discussion with other stakeholders (e.g., technicians), which behaviors are appropriate for an EE&C program to target.

CONTRASTING BETWEEN PERFORMERS AND NONPERFORMERS

This is where we started, with two women, one a recycler, the other not a recycler. Barriers and enabling factors influence the adoption of behaviors. These determinants may be either external or internal to the individuals, and are easier to identify when comparing information from individuals performing the targeted behaviors to those who do not.

Individuals performing these behaviors may be at different stages along a behavior performance continuum. Prochaska and DiClemente (1983) have suggested that there may be five such stages: Pre-contemplation, contemplation, action, maintenance, and advocacy (see Table 2.1).

Individuals at any stage may be motivated to move to the next stage by a message unique to that stage. Thus, a message to insure maintenance behavior will be different from a message designed to promote contemplation. Rather than appealing to the experimental nature of trying something new, maintenance messages should strengthen existing positive consequences by eliminating or changing negative consequences or by reminding individuals of important information that reinforces their behavior (Graeff, Elder, and Booth, 1993).

Table 2.1 Stages of Behavior Performance

Name of the Stage	Description
Pre-contemplation	Not considering or not knowing about an environmentally friendly behavior, or actually engaging in an environmentally unfriendly behavior such as dynamite fishing
Contemplation	Beginning to think about adopting to changing to an environmentally friendly behavior
Action	Trying out an environmentally friendly behavior
Maintenance	Making the adopted environmentally friendly behavior a customary practice
Advocacy	Multiplying the behavior by encouraging others to do the same

BEST COPY AVAILABLE

What real barriers stand in the way of people adopting this new behavior? These are external determinants.

Not only do individuals move along a continuum of awareness and willingness to perform a behavior, but so do populations (Muth and Hendee, 1980). As more people shift from contemplation to action, for example, it becomes easier for others to move because the social norm changes toward accepting the behavior.

MAKING IT POSSIBLE BY MAKING IT EASY: REDUCING BARRIERS

When social marketers take on a communication challenge, they often first consider the context of the behavior. What real barriers stand in the way of people adopting this new behavior? (First and foremost, the behavior must be *possible*.) These are *external determinants*—factors that affect performance of the behavior that are external to the individual. If recycling is not available in the municipality, it does little good to promote recycling behaviors. In comparing recyclers to others, some external determinants might be more obvious: Do recyclers live closer to the recycling center? Do they have a higher income, fewer children, or a flexible schedule that allows them to run errands when the center is open? Thus, all the elements that come into play when the behavior is performed are potential opportunities for the social marketer to alter.

A message could emphasize that the recycling center now stays open longer, or that new containers make storage of sorted recyclables easier. If time and convenience are the major barriers to recycling, the communicator might advocate a message that changes the perception of these determinants, such as, "it's not so hard; kids do it."

Clearly, the initial research to understand the audience and their context would need to cover questions that reveal their perception of barriers, the reality of barriers, and the incentives that motivate people (Kotler and Roberto, 1989).

Knowledge and Information

A common myth is that people don't behave appropriately because they don't know better, and therefore information is the cure for changing behavior. If your give people the facts that excess garbage can pollute groundwater, that rapid deforestation increases soil erosion, or that fishing with dynamite destroys coral reefs, they will correct their environmentally destructive behaviors. Clinging to this myth actually limits our efforts to change behaviors or provide the skills needed to perform the appropriate behavior. Providing information must be just part of a larger strategy.

Obviously, information is necessary, though not sufficient. A study in Ann Arbor, Michigan comparing recyclers to non-recyclers revealed that both groups were equally knowledgeable about the status of the local landfill, both cared about their garbage and their future quality of life, yet the non-recyclers were stumped by the procedural details of the recycling process (De Young, 1988–1989). They weren't sure how to package their newspapers or whether to take the labels off the tin cans. Information was the key to converting them to recycling behavior, but it was only the procedural information, spelling out the skills involved each step of the way. Some people define this type of knowledge as building the skills required to perform the behavior.

Similarly, a complicated recycling pickup schedule in the Municipality of Quito, Ecuador was found to affect compliance. A different type of waste was collected every day: organic kitchen waste on Mondays, Wednesdays and Fridays; recyclable paper, cans, and glass were collected on Tuesdays; and bathroom waste was collected on Thursdays. Neighborhood residents who could not articulate the schedule could not follow it, either. Some residents found the rules for recycling plastic so difficult that they did not recycle plastic at all.

Knowledge of the *consequences* of action or inaction is another type of information that could be a separate determinant and is often closely aligned with attitudes about the future.

Information can be conveyed in the form of prompts, reminding people to turn off the lights as they leave a room or to fill their gas tank after sunset on high-ozone days (Stern and Oskamp, 1987).

Humans are social organisms. We live in communities. We identify with groups. And we care about what other people think.

Prompts tend to be helpful only if well worded and well placed. Their reliability declines as they lose novelty and the new behavior tends to revert to the old behavior once the prompt is removed (DeYoung, 1993).

Confidence and Perceptions of Self Competency

Bandura (1977) defines perceived self-efficacy as the judgements that one may have about one's capabilities "to organize and execute courses of action required to attain designated types of performances." He is simply talking about people's confidence to act. He adds that people who perceive themselves as highly efficacious will act, think and feel differently from those who do not. According to this theory, perceptions of self-efficacy to successfully execute a desired behavior, as well as the positive and negative outcome expectancies of that behavior, are the key determinants of behavior and, consequently, the keys to behavior change.

Mastery of a skill by observation will lead to a perception of self-efficacy. A person seeing similar people successfully perform a given behavior may believe that he or she can also do that, thus enhancing a perception of self-efficacy. Verbal persuasion can be used to make people believe that they possess capabilities that will allow them to achieve certain objectives.

Mastery of a skill by practice is the most influential source of self-efficacy information. So, opportunities that permit skill enhancement through guided practice and corrective feedback are the mark of effective behavior-change programs. Depending on the behaviors targeted by an EE&C intervention, the promotion of environmentally friendly behaviors may require the development and/or the enhancement of appropriate skills. Farmers may not use agro-chemicals appropriately because they lack appropriate skills to do so. Mastery of skills associated with appropriate agro-chemical use will lead to perceptions of self-efficacy, which in turn will help farmers perform new behaviors. Self-efficacy may generalize to other situations, particularly those that are most similar to the one where self-efficacy was enhanced (Bandura, 1986).

Perceptions About Outcomes

According to Ajzen and Fishbein's Theory of Reasoned Action (1980), an important determinant of behavior is *attitudes*, and attitudes are a function of a *person's salient beliefs about the consequences of a behavior* and the person's evaluation of those consequences. Salient beliefs are top-of-the-mind beliefs about those consequences. The more one believes that performing the behavior will lead to positive consequences the more favorable the person's attitude. Conversely, the more a person believes that performing a behavior will lead to negative consequences (or prevent positive consequences), the more negative the attitude. Individuals will perform behaviors about which they have positive attitudes and avoid those about which they have negative attitudes.

Examples of positive consequences of a behavior include: obtaining fuel wood for cooking meals for the family, obtaining medicinal plants from a forest to cure a family member who is ill, participating in a recycling program to set a good example for the children. Examples of negative consequences of a behavior include: having to pay a fine for disposing of garbage in an illegal dumpsite or having to face social criticism from important others because of reporting relatives whom have violated a fish sanctuary.

Social Pressures

Humans are social organisms. We live in communities. We identify with groups. And we care about what other people think. In some important ways, each of us wants to belong to a group. In some other important ways, each of us may be willing, at certain times in our lives, to step away from the group and do something different. The tension between fitting in and being unique is hard to predict and will vary from individual to individual. Nevertheless, this continuum represents an important set of determinants of behavior.

Since humans care about what others think, EE&C programs can be designed to use the power of social pressure to help change behaviors. The act of making a commitment, such as signing a pledge, has been shown to be an effective strategy to call upon this type of human response to the perceptions of others. Participants are quite likely to make their word good and continue the changed behavior (Katzev, 1986; Stern and Aronson, 1984).

Education and communication programs can use social norms to their advantage. When a mayor offers to personally congratulate the apartment dwellers that achieved the greatest reduction in their energy usage, residents take pride and other citizens take notice. When movie stars promote certain eating habits, their fans might join them (Monroe and DeYoung, 1994).

SUMMARY

Human behavior is a key element that both contributes to, and helps resolve, environmental problems. Building a behavioral element into EE&C programs requires that programmers work closely with the people involved to choose the appropriate behaviors on which to focus.

A variety of determinants help create and support behavior, so a vast collection of motivators and messages may be available to inform and change behavior. Experience in both health and conservation behaviors indicates that simple, individual behaviors (turn off lights, recycle newspapers) that result in direct and immediate consequences (reduced electricity bills, reduced garbage costs) are the easiest to change. Complex, group-based, long-term behaviors are harder to change. Yet our environmental problems require that we continue to teach and support environmentally appropriate behaviors that may not have immediate rewards. The degree to which EE&C programs can use the whole range of motivators and generate their own feedback systems will be a key to success in changing behavior.

In this way, we can reinforce the woman who recycles, and understand how to motivate the other woman to become a recycler too.

References

Ajzen, I. and M. Fishbein. (1980.) *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice Hall, Inc.

Bandura, A. (1977.) *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall, Inc.

Bandura, A. (1986.) *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall, Inc.

DeYoung, R. (1988–1989.) "Exploring the difference between recyclers and non-recyclers: The role of information." *Journal of Environmental Systems*. 18: 341–351.

DeYoung, R. (1993.) "Changing Behavior and Making it Stick: The conceptualization and management of conservation behavior." *Environment and Behavior*. 25(4): 484–505.

Graeff, J., J.P. Elder, and E.M. Booth. (1993.) *Communication for Health and Behavior Change*. San Francisco, CA: Jossey Bass.

Green, L., M.W. Kreuter, S.G. Deeds, and K.B. Partridge. (1980.) *Health Education Planning: A Diagnostic Approach*. (2nd ed.). Mountain View, CA: Mayfield.

Katzev, R.D. (1986.) "The impact of commitment in promoting consumer energy conservation," in E. Monnier, G. Gaskell, P. Ester, B. Joerges, B. Lapillonne, C. Midden, and L. Puiseux (Eds.) *Consumer behavior and energy policy: An international perspective*. New York: Praeger.

Kotler, P. and E. L. Roberto. (1989.) *Social marketing: Strategies for changing public behavior*. New York: The Free Press.

Monroe, M.C. and R. DeYoung. (1994.) "The Role of Interest in Environmental Information: A New Agenda," *Children's Environments*. 11(3): 243–250.

Muth, Robert M. and John C. Hendee. (1980.) "Technology Transfer and Human Behavior," *Journal of Forestry*, pp. 141–144.

Prochaska, J.O. and DiClemente, C.C. (1983.) "Stages and process of self-change of smoking: Toward an an integrative model of change," *Journal of Consulting and Clinical Psychology*. 51. 390–95.

Stern, P.C. and E. Aronson, Eds. (1984.) *Energy Use: The Human Dimension*. New York: Freeman.

Stern, P.C. and S. Oskamp (1987.) "Managing Scarce Environmental Resources," in D. Stokols and I. Altman (Eds.), *Handbook of Environmental Psychology*. New York: Wiley.

BEST COPY AVAILABLE

Chapter 3

Participation

Mona Grieser

The past ten years have seen a sea change in philosophy regarding international development projects in general, and education and communication projects in particular.

The new approach, inspired in part by recent behavioral research, prominently features the word "participatory." Whether called "participatory development," "participatory learning approach," "participatory monitoring and evaluation," or "participatory rural appraisal," the new methods proceed from the premise that people have a right to be part of decisions that affect their lives. The methods are guided by the observation that local stakeholders know better than anyone else what their problems are and what solutions might work. Behavioral research also shows that when people commit to a course of action that is their idea, the results are more likely to succeed and continue than when ideas are imposed from the outside, or delivered within a top-down structure.

A participatory project aims to involve as many local stakeholders as possible in the process of formulating, designing, implementing and evaluating programs in the hope of making development self-directing, fair, and self-sustaining. In addition, participation aims to erase the feelings of inferiority that stakeholders from developing countries have often experienced in relation to their counterparts in developed countries.

In the process, the development worker sheds his or her status of "expert" and becomes instead a listener and facilitator dedicated to helping stakeholders solve their own problems. "Who's participating in whose project?" the participatory facilitator may ask. And she answers: "The outsider is actually participating in the clients' project." Simple as the wording may seem, it represents a radical change of perspective.

Participatory development assumes that a diverse group of stakeholders brings sufficient wisdom—technical, social, and political—to produce a sound project. Further, it assumes that a given solution, if not technically superior to an expert's solution—will benefit from the commitment of the community and will actually be enacted.

The process of participation can benefit projects in health and infrastructure as well as environmental education. GreenCOM's experiences are each unique, but the lessons learned could be applied by communication and development professionals operating anywhere.

WHAT IS PARTICIPATION IN AN EE&C PROJECT?

Examples from the GreenCOM experience demonstrate the variety of participation in environmental education and communication projects. Each project brings together key actors and representatives of key publics to research, design, implement, and/or evaluate an intervention. Each uncovers important facts, assumptions, and trends through working with diverse groups of people in an atmosphere of respect and discovery—and comes up with solutions that no outside "expert" would likely have found.

- In Jordan, a participatory GreenCOM workshop brought together representatives of stakeholders in a school system to develop an environmental education curriculum for school clubs. Teachers, students, administrators, NGO environmental education staff, scientists, *Participatory development assumes that a diverse group of stakeholders brings sufficient wisdom—technical, social, and political—to produce a sound project.*

donor representatives, curriculum development professionals, gender specialists and communication professionals all met for two weeks to design a water awareness curriculum. GreenCOM helped NGO staff with the preliminary formative research and later trained them to analyze it, but the NGO performed the actual research and analysis (see Chapter 15).

- GreenCOM/Egypt addressed the problem that villagers were having with decreased waterflow in irrigation canals. The project used video cameras to help people tell their story to government decision-makers. These functionaries are often so far removed from the field and so buffered from local reality by the reports of their own (often biased) field staff that they are unaware of the real problems and issues affecting the final client, the farmer. The video camera allowed the farmer, and most importantly, the women of the community, to speak "directly" to the Minister and his staff. The video was used to effect institutional change in the irrigation Ministry and make it more client-centered.
- GreenCOM/Nepal sponsored a participatory video workshop in which members of community forest user groups (CFUGs) prepared a community video letter to present their concerns on forest issues to top-level government officials. After the viewing, the government officials provided feedback to the community members, addressing some of their concerns. The gender-balanced group represented castes and ethnic groups who rarely speak together. Using some of the tools outlined below—plus story telling and informal walks in the forest to significant places—the group developed enough trust and openness to come up with their own messages. After some video training, they articulated these with clarity and forcefulness (see Chapter 12).
- In Fez, Morocco, GreenCOM worked with the municipality of Zouagha to re-engineer the system for collecting solid waste. GreenCOM brought to the same room all possible stakeholders, including such disparate players as the mayor, neighborhood residents, the local member of Parliament, municipal staff including truck drivers, sanitation engineers, health professionals, representatives of community groups, solid waste experts, the directors of the solid waste program, the person responsible for hiring personnel for the municipality, staff of the maintenance depot of the trucks, and GreenCOM technical personnel.

During the two-week activity, the group researched the solid waste system as well as the social structure of the community, analyzed that knowledge and came up with solutions that, while perhaps not technically ideal, represented the greatest consensus possible. Because of the evident transparency of the activity, everyone concerned felt that a milestone in cooperation and understanding had been achieved.

These four examples of GreenCOM activities have much in common. They exemplify the philosophy of participatory development clearly—a philosophy in keeping with the democratic spirit of the age. The activities also build local capacity so that agencies as well as individuals are better able to take charge of their future.

PARTICIPATORY APPROACHES

Generally participation begins with courtesy calls to local leaders and discussions leading to a consensus that there are problems of concern to the community, and that examining their causes could be beneficial to all.

The next step depends on the degree to which one is committed to participation. Pioneers of the participatory approach insist that the development professional step into the shoes of the villager or whoever is experiencing the problem. If this means that a day or a week is spent fetching wood, carrying water, building a local house, repairing a local road—then that is precisely what the development professional must do. This exercise shows the villager that the

Women interviewers solicited women's views, and when they were presented, it was clear to all that women's knowledge filled in many gaps in the record.

"expert" is imperfect, and that the villager, too, has expertise that he can teach to the technical specialist. This helps the two meet as equals.

Living the village life also shows the technical specialist just how difficult that life is, and that suggestions for improvement need to be tempered with humility. GreenCOM has used exercises in workshops that simulate this activity and show all the concerned parties that each person's knowledge and opinion is valuable.

LEVELING THE FIELD

Participatory exercises are relatively simple but require patience and skilled facilitation. In the Fez case, GreenCOM used team-building exercises and ice-breakers to raise the comfort level of participants, ensure everyone's participation, and guide participants to recognize the validity of the points of view of others in the room, despite differences in role and social status. For instance, while the room was originally set up with the government officials seated on a raised dais, the facilitators brought everyone down to one level, literally, and reinforced cross-role communication by dividing people into discussion groups randomly.

To prohibit prominent participants from dominating the discussion, ground rules included not allowing anyone to speak a second time until everyone had spoken once.

While the men at the meeting forbade the presence of neighborhood women, workshop organizers saw to it that women's voices were included. Women interviewers solicited women's views, and when they were presented, it was clear to all that women's knowledge filled in many gaps in the record. The information from women was thus used as an object lesson showing the improved performance that results from inclusion.

Many participatory techniques emphasize visual methods for drawing people out and promoting discussion. Rather than individual sources of information, such as surveys, they focus on group activities that generate shared visual representations such as maps of forest boundaries; charts ranking social and economic status within a community; maps of irrigation, time-lines of land-use, and so forth. The tools do not depend on literacy. Each tool looks at information in a different way. Use of multiple tools provides a way to cross check data.

PARTICIPATORY ENVIRONMENTAL RESEARCH METHODS

In addition to facilitated discussions, many tools exist to help groups obtain information, analyze it, and make decisions. The following examples will pertain to a sub-objective of improving or building irrigation canals to increase agricultural output.

Mapping

By walking through the territory and performing a group map-making exercise, participants can contribute and gather a great deal of information about possibilities, trade-offs, and concerns. Maps show the relationships between various systems, natural and man-made and illustrate potential problems and alternative solutions. Mapping is often the first participatory exercise in a project. In this non-confrontational and collective experience, women and other marginalized members of society may feel freer to express preferences and ideas.

A map for discussion of irrigation might include:

- Natural resources (rivers, forests, streams, meadows, mountains)
- Existing infrastructure (roads, railways, electrical lines, sewage, water pipes, garbage sites)
- Existing system of canals noting which require repair, upgrading or maintenance
- Water sources from which irrigation canals would be filled
- Location of new canals
- Locations of human habitations (houses, towns or villages)
- Location of solid waste disposal sites (traditional or formal)
- Location of fallow land and land not currently under agriculture that might be used for expansion

- Traditional (ancient) water catchment basins and canals
- Where aquifers flow below ground and where water is surface water
- Cattle/sheep pasture land
- Where women obtain domestic water.

The following comments on mapping come from the final report of the Nepal video letter project:

> *The production of the map was definitely a collective endeavor: boundaries and river markers were discussed, erased and drawn again; each member brought an object to mark his/her house; groups went off to collect red mud for drawing. When the map was complete, the specialized representation triggered in nearly every participants mind a different issue as they could situate their own homes and daily concerns within a larger... context. Many commented that they were amazed by how many issues they were able to pin down all at once by making and then consulting...the map. They also found this exercise to be more fun than simply talking or walking, and their interactions with one another become more direct.**

Transect Maps

The transect shows the topography of the land in relation to land usage. It shows where ecological sub-zones might require greater care and attention, where soil loss may be greatest and where gravity flow irrigation will and will not work. A transect map for irrigation could indicate:

- Hills and mountain areas
- Streams and drainage
- Gradient and timber line (if appropriate)
- Crop production in the various zones
- Other land uses (e.g. dwellings or human habitation, dams).

Seasonal Calendars

When it comes to irrigation, seasonality is particularly important. A group exercise might yield, for example:

- Data on cropping patterns by season
- Times of maximum use and availability of water
- Times of minimum use and availability of water
- Tasks of men, tasks of women
- Data on planting and harvesting.

Time-Line/Historical Profiles

Historical profiles in irrigation can help a community better understand its own use of water. The time periods can be vast, as in a comparison of Roman irrigation and agricultural methods with contemporary methods. Or a time line could cover a generation, marking important episodes recalled by the community. A time line might note, for example,

- Major migration patterns in and out of the village
- Years of flood, drought, epidemics
- Deaths of leading figures
- Harvest celebrations or other celebrations and festivals; religious holidays
- Completion of construction of major monuments such as the village mosque or community center
- War or other conflicts.

Trend Lines

It is important that the community understand trends that affect their resources. Such trends range from changes in rainfall to shifts in market opportunities. Economic and social differences can be highlighted, for instance if rich farmers feel that productivity has been constant, but poor farmers do not. Trends are represented as graphs or visual charts after plotting the amounts over several years. Research on irrigation might spotlight trends over time in such areas as:

---

*Nepal: Environmental Education and Communication—Environment and Forest Enterprise Activity (EFEA), GreenCOM Final Report, November 1998.

Ranking is a simple way of asking a community to limit its choices to those things that are the most important to all of them.

- Crop production
- Soil loss and fertility
- Rainfall
- Land cover
- Forest loss or reforestation
- Population
- Employment, for men and for women.

Matrices

Matrices can be used to explore any subject. For example a *historical* matrix for irrigation might be a chart indicating the following items at three points in time: before, during, and after a war:

- Land under irrigation
- Size of land holdings and ownership
- Kind of crops under cultivation
- Amount of cultivated land
- Amount of fallow land.

A *classification* matrix might show natural resource use by category of individual over the past year. The vertical axis could indicate land use (food or cash crop production, sheep or cattle ranching, natural forest, wood lots), while the horizontal axis represents categories of individuals (women, men, youth, adults, poor, rich) who use that land.

A *conflict* matrix looks at the various users of the resource and tries to indicate where conflict may have arisen in the past year or two years. In irrigation, possible causes of dispute might be where water is used by the person at the head of the canal leaving little for those at the tail. It could be about landowners who do not maintain the portion of the canal that crosses their land, thus limiting the flow of water to others below them. It can be caused by one village maintaining ownership of the water and limiting its use by other villages in time of drought. Again each box records the actual frequency of such conflicts so that they can be prioritized.

Pie Charts

Pie charts are a simple way of visualizing information and can show, for example, the proportion of a farm family's time spent in planting, or time spent irrigating. A pie chart could dramatically show the proportions of women's and men's labor involved in irrigation or obtaining household water.

Ranking

Ranking is a way of classifying information and prioritizing sensitive information and is often used to initiate an activity prior to using another participatory tool. For example, when studying the proportion of land ownership by rich people and poor people, it may be necessary to do an exercise with a pie chart to determine who is rich and who is poor in a village. The criteria for determining wealth should be determined by the community itself and is often an occasion for dynamic debate. Sometimes ownership of material things (a bicycle, a car, a tractor, sheep, cattle, etc.) is counted to measure wealth. Sometimes ownership of land is counted. Whatever the criteria, it should be decided by the community. Ranking is a simple way of asking a community to limit its choices to those things that are the most important to all of them.

CONTINUING THE PROCESS

Creating maps, time-lines, trend-lines, and seasonal charts—these help a community collect and sort relevant information, and prioritize it. Once sufficient information is generated, it is orally and publicly analyzed, and solutions are proposed. For implementation, participation implies self-directed development and communities are expected to exhaust their own resources in terms of manpower, money and materials, before asking for external assistance.

POTENTIAL PITFALLS

Western-trained experts look at development through a particular mental model and ask the questions dictated by that model. Other people's mental models are shaped by their own training and experience, which is why it is important that

Western-trained experts look at development through a particular mental model and ask the questions dictated by that model.

the research questions that lead to the design of a project or program be framed by the local community and not by the development expert. No matter how skilled the experts, they cannot presume to stand in the shoes of the client.

To the extent that s/he asks for particular information, the technical specialist still controls the development agenda. This control may satisfy donor concerns for accountability, but it continues to skew the process of development.

Another pitfall is that, in reality, participation is extremely difficult to get—and will never approach 100 percent. Development specialists will do well, though, to try to include at least representatives of the most concerned groups.

Finally, participation may not always be the most useful route to take. Legislation and regulation can be more direct and efficient. Communication activities can then focus on compliance.

In sum, useful participation is less a matter of applying techniques, methods and approaches, than of an attitude that values the views of all who are directly affected by a project.

35

Chapter 4

Gender Matters

Mona Grieser and Barbara Rawlins

Everywhere in the developing world, women play crucial environmental roles: farmer, sylviculturalist, gatherer and distributor of water, fuel, fodder, and traditional medicines. Women not only use natural resources; they manage and protect them as well. So women's participation in environmental project planning can make the difference between success and failure.

In the past, women often participated in environmental projects only as volunteer helpers. Planners assumed that simply working on a project would advance women's interests. In reality, since men tend to dominate decision-making in local government and community-based organizations, women's needs were ignored, and women benefited little from projects like these.

WHEN GENDER ANALYSIS IS MISSING

An example of what can happen in the absence of gender analysis comes from Madagascar. Policies there explicitly acknowledged the need to work closely with communities to maintain local interest and offset the loss of income resulting from park establishment. Buffer zone strategies would provide alternative employment for communities. But no gender research guided the development of the program.

Madagascar officials hired men as salaried guards or foresters in the park or the newly created Association of Tourist Guides. When men became salaried employees, they passed the work on their family agricultural plots to women, adding to the women's burden. Program planners asked few questions about where women would get fuel and water once traditional sources in the park became off-limits, or about how much more time it would take. They failed to consider where women, often the traditional healers for the community, would obtain the herbs and medicinal products that they used to get in the forests, or whether the income from traditional medicines or forest products would disappear. They also failed to find out which tasks the women would have to neglect to carry out these additional burdens. (Often, it turned out, women had to cut their time with young children, meaning older daughters had to assume family responsibility earlier.)

This example indicates some of the gender questions that environmental education and communication (EE&C) research should ask at the beginning of the project planning or policy formulation process. Such research can bridge the gap between planners, policy makers, and stakeholders, and can help ensure a successful and equitable policy or project (see Box 4.1).

The tools of gender analysis distinguish between practical and strategic gender needs of women:

Practical gender needs are concerned with inadequacies in living conditions such as water provision, health care, and employment. Practical gender needs do not challenge the gender divisions of labor or women's subordinate position in society (Moser, 1993).

Strategic gender needs, on the other hand, relate to gender divisions of labor, power, and control and include issues like legal rights, domestic violence, equal wages, and women's control over their bodies. Meeting strategic gender needs helps women achieve greater equality by changing existing roles and challenging women's subordinate position (Moser, 1993).

The most basic precaution a researcher must take is to ensure that the methods employed, and the wording of questions, do not bias against women.

BOX 4.1

How Gender Research Can Shape Project Design

Gender analysis was integrated into all GreenCOM's programs in El Salvador. For example, one study examining the use of fuel wood by rural populations indicated that two gender-linked reasons drove the high demand for fuel wood:

> While women primarily used wood for household fuel, they did so at the direction of their husbands, who expected that freshly made tortillas would always be available. The fire must be kept stoked to be able to make these tortillas. Husbands' ideas of a warm and loving atmosphere in the home included the constant presence of a lit hearth.

Based on these findings, GreenCOM worked with women to promote fuel-efficient stoves and prepared messages for men that addressed their concerns as well.

"ENGENDERING" EE&C PROGRAMS

Integrating gender concerns starts with understanding gender roles. After exploring the different spheres of men and women, we can ask vital questions about the impact and equity of a new program. By changing how people do things, will men or women be more affected? Who will get more, or less, work? Who will get more, or less, money? Who will get more, or less, power or status? Who will get any new jobs? Who will lose jobs? What in fact constitutes equity in this situation? Can the community assimilate these changes, and what will it take to ease the transition? (see Box 4.2).

Gender analysis helps us get more and better information about people's knowledge, attitudes, and behaviors. Again and again we've found that a gender component helps us design better programs that further both environmental protection and equity. But using gender analysis in a meaningful way entails more than disaggregation of data. Gender awareness plays a part in each step of needs assessment, research, planning, implementing, and evaluation (see Box 4.3).

GENDER-SENSITIVE NEEDS ASSESSMENT

When investigating an environmental problem in a community, it is essential to solicit the views of men and women independently to assess their needs and concerns. Women often hesitate to express opinions when both sexes are present, and males tend to dominate the conversation. It is therefore advisable to interview women alone or in groups of other women using female interviewers and moderators.

Data should be collected from equal numbers of men and women (disaggregated) using gender-sensitive techniques and a mix of research methods. But the most basic precaution a researcher must take is to ensure that the methods employed, and the wording of questions, do not bias against women. Methods involving written responses tend to be biased against women, who generally have less education than men. Additionally, research conducted when women may be unavailable also excludes them.

Non-traditional research methods can expose problems that may not emerge from either quantitative (surveys) or qualitative (focus group) research. Such methods include participatory exercises, use of traditional media (dramas, songs created by women), modern technology such as videos or Polaroid cameras, etc. (see Box 4.2).

Qualitative research can contribute towards developing a quantitative survey that is gender-sensitive and better tailored to the local situation. Initial qualitative research can:

- ◆ Identify gender issues that local people think are important
- ◆ Identify the language people use to describe their opinions and concerns

0883001001646

BOX 4.2

Making Voices Heard: Video Communicates Women's Messages to Policymakers

In Egypt, GreenCOM used video to capture male and female farmers discussing ideas for cleaning up the local irrigation ditches *(mesqas)* and for resolving other community issues. In one village research helped define a communications intervention to encourage farmers to organize themselves to clean up *mesqas.*

Focus group discussions were held with four groups of adults responsible for making farming decisions: women under 40 years; women over 40; men under 40; and men over 40. In-depth interviews were conducted with 21 key informants, including the deputy mayor, supervisors from the cooperative, the village doctor, the Iman, the irrigation inspector, the irrigation engineer, members of the village council, and male and female farmers. The discussions and interviews covered the largest problems facing the village, opinions about the agricultural and waste disposal systems, the amount and quality of water in the *mesqa,* social issues such as village gatherings, community actions, health care in the village, and gender issues such as women's work.

The innovative part of this research was the use of a video camera as a research tool. The resulting video was critical to developing an understanding of the attitudes, perceptions, and behavior of farmers and key informants, to identify barriers and ways to overcome them. The video also helped determine what action the community would take regarding the maintenance and improvement of *mesqas.* Finally, the video communicated these findings to national government ministers.

For the first time, village women had a direct link to national policymakers—who listened to their concerns. What the women revealed in this film was that mesqas were clogged because women did not have anywhere else to put the family's garbage. This intervention helps to demonstrate both the importance of listening to women as well as the role of communications and research techniques in facilitating community action for environmental improvement.

- Assess the difficulty of discussing the environmental issue of interest with community members.

The household, in its myriad cultural forms, is generally viewed as the basic unit of social organization and often used as the unit of analysis when conducting quantitative social science research. But domestic gender relations are often characterized by an unequal distribution of power favoring males, mirroring broader gender inequities in political influence and access to resources that are structurally entrenched.

Males and females in the same household may not only have divergent environmental priorities but also separate avenues for effecting change. It may be useful to conduct *intra-household* research, by independently interviewing at least one male and female from the same home and comparing their views, in addition to comparing men and women across households.

VARIABLES IN GENDER ANALYSIS

Studying the variables listed below may help program planners develop a better understanding of women's triple roles (productive, community management, and reproductive) and men's dual roles (productive, community management) and how these roles might affect their receptivity to, participation in, and benefits from EE&C interventions

BEST COPY AVAILABLE

(Pfannenschmidt and McKay, 1997). The variables are intended to help assess both women's practical and strategic gender needs (also see Box 4.3).

Variables of potential interest, depending on site-specific needs, include:

Personal Characteristics

- Age
- Occupation
- Education
- Marital status
- Ethnicity
- Religion
- Seniority in household
- Membership in community organizations
- Seasonal allocation of time

BOX 4.3

Engendering Data Collection

Missing Information in the Philippines

In the Philippines, a GreenCOM desktop review of five local environmental case studies demonstrated that women's subsistence strategies are driven by the family's basic need for food and the barest essentials, and that they manage their activities relative to the tasks of other members of the family. Thus, to understand women's roles one has to understand the roles played by other members of the household (Abregana, 1997).

Several information gaps were identified: there was a lack of information on women as resource managers, sources of information and channels of communication had not been adequately identified, and an intergenerational perspective was missing—particularly important in a country that puts a premium on strong family values passed on to the next generation. Patterns were emerging that showed women's entry into spheres of activities traditionally handled by men, such as raising corn. The seasonality of fishing and farming as related to gender roles was not adequately explored either.

Gender Differences in Jordan

In Jordan, GreenCOM assisted with a school-to-home water-conservation project implemented through school-based environmental youth clubs. Jordan's sex-segregated schools were an ideal place to investigate different attitudes and behaviors between girls and boys, female and male teachers and administrators, mothers and fathers. Preliminary qualitative research showed that women sensed a greater personal responsibility for water conservation than men did—women offered more alternatives for saving water and avoiding waste. In contrast, men perceived the lack of water as a government problem, blamed the Israelis, felt entitled to as much water as they thought they needed, and evidenced little personal responsibility for water use and abuse. In sum, water was viewed by men as a women's issue.

One way of looking at the data is to assume that if women's environmental behavior is more responsible than men's, environmental specialists should focus on women. In these particular projects, however, GreenCOM assumed that bringing men up to the women's level of responsibility would substantially reduce negative impact on the environment. Therefore, much of the curriculum content was designed to focus on the ways that men could improve water conservation in the home, such as using drip irrigation instead of a hose in the family garden; repairing leaky faucets, pipes, and storage tanks; building storage tanks for grey water; putting in simple water catchment facilities for rain runoff; washing the car with a bucket of water, not a hose; and turning off the tap while shaving.

BEST COPY AVAILABLE

- Environmental knowledge, attitudes, beliefs, and practices

Household Characteristics

- Hierarchy of household
- Family size
- Number and ages of children
- Social class/caste
- Gender-based division of labor (adults and children)
- Sources of income (including out-migration)
- Spending patterns
- Financial responsibilities and control
- Intra household decision-making/conflict-resolution processes
- Location (rural/urban)

Community/Societal Characteristics

- Location (rural/urban)
- Gender-based access to resources and legal framework (e.g., education, training, information, new technologies, extension services, administrative and government services, land tenure, traditional rights and official ownership laws, credit, infrastructure, markets, transportation, labor rights)
- Social institutions (relevant existing neighborhood and community groups, including membership composition and rules)

The information gathered through gender analysis enables program planners and implementors to answer the following two questions (World Bank, 1992):

> What are the *constraints* to environmental action that affect men and women differently?
>
> What are the *opportunities* for either men or women in a specific environmental area or sector?

In deference to the many false expectations created in developing countries by previous assessment activities, the purpose for gathering information from respondents should be clear from the outset so that ethical problems may be avoided.

DATA ANALYSIS CONSIDERATIONS

Gender analysis should describe similarities and differences between men and women in various subgroups within the community. It is important to recognize that women are not a homogenous group but have differing generational perspectives: the needs of teenagers are not the same as the needs of the elderly; single mothers have different needs from married women. Information on age can often provide insight into educational attainment by generation and supports arguments for better access to education for women. (There is generally a change in knowledge and attitude across the board between women under and over 26 years old, due to improved access to education.) Thus, it is vital to disaggregate information not only by sex, but also by age categories and socio-economic status. Based on results of the analysis, specific EE&C strategies may be developed for women and men.

Research findings should be shared with respondents. This can be done by drawing them into the design phase of the program.

DESIGNING AND IMPLEMENTING THE PROGRAM

Education and communication programs reaching women should consider the following key issues:

Literacy: The literacy level of women in developing countries is often much lower than that of men. Therefore materials aimed at rural women need to use minimal text and be appropriately simplified. In addition, words need to be familiar to women and culturally appropriate.

Language: Women in developing countries are often less fluent in the national language, speaking only the dialect in their area. National languages are introduced into the formal school system after third grade, by which time many girls have already dropped out.

Pictorial Convention: Women have far fewer opportunities to view printed material than men do. Consequently they are not always familiar with the conventions associated with pictorial literacy. This includes understanding the sequence of pictures if more than one picture is on a page, being distracted by unfamiliar objects or persons, not personalizing a message if the pictures are unfamiliar, not understanding common pictorial conventions such as perspective, foreshortening, close-ups. These challenges heighten the need for pretesting materials directed to a female audience.

Context: Women are socialized from an early age to submit to peer pressure and to conform to community norms. If women are to make individual decisions, they often need the security of knowing that their peers are making similar decisions. Involving women in a group setting is more productive, from the communicator's point of view, than trying to deal with women individually. Additionally, women may need some time to come to a decision, and that may mean consulting with their husbands or families.

Timing: Timing an event or a training to best involve women and girls is crucial, since leisure time for participating in extracurricular activities is usually not available. Girls have after-school chores; women have morning and evening chores. Women have major seasonal responsibilities associated with farming or hiring out their services to reach the family's economic goals. In India, a project that looked at women's time over a period of a year found only two months in the year when women could participate in project activities. The rest of the year, their time was fully engaged.

Commitment: Communicators in EE&C will readily notice the eagerness of women to involve themselves in activities that will improve conditions for their families or their communities. Women will often assume tremendous sacrifices to assure their families a benefit. By the same token, however, if women do not perceive an immediate benefit to their families, they will not commit their time and efforts to promote a project. In natural-resources activities, the communicator has the additional problem of demonstrating to women that conservation or sustainable use will benefit their families.

PRETESTING BY GENDER

Whether the intervention is a media campaign to support a technical program, a formal curriculum for children, or an adult training course, it should be pretested in three settings: women/girl only groups; men/boy only groups; and mixed sex groups. If the needs assessment finds that audiences should be further segmented, then they should be segmented for the pretest.

MONITORING AND EVALUATION

Creating appropriate, gender-sensitive indicators of success is no easy task. Indicators must reflect the local social and cultural context within which the project operates. The time-frame within which the project is implemented and results are expected must be realistic. For example, indicators may not focus on environmental outcomes and benefits to women, but on changes in the local power structure which may help women's voices to be heard. Since many EE&C activities in both rural and urban areas focus on supporting the development and strengthening of grassroots organizations to manage resources, program evaluations should assess the involvement and role that men and women have in decision-making within these organizations. In addition, economic benefits for women can be especially difficult to measure in communities where most local income comes through barter or trade.

Three Measures of Impact

- *Head counts:* The number or percent of men and women who: participate in or are exposed to project activities, are members of local counterpart organizations, participate in training, recall communication messages, perform a specific behavior, hold positive attitudes and beliefs about a practice, etc.
- *Type of benefit:* The number or percent of men and women who joined the Board of Directors; received allocation titles, obtained salaried jobs, benefitted from alternative employment schemes, and so forth.

- *Average benefit by gender:* Differences in benefits for female-headed versus male-headed households.

Monitoring

As the project proceeds, useful questions include:

- Are all data disaggregated by sex, age, and socio-economic status?
- Were women employed and trained by the project? Did women participate equally with men and were they paid equally as men?
- Were appropriate indicators developed to measure the on-going impact of the project on men and women (short-term, medium-term, and long-term where appropriate)?
- Does the project use the extent to which women's relations with men have improved as an indicator of effectiveness?
- Are women and men treated with equivalent respect—both as participants and staff personnel?
- Are women and men segmented into different target audiences? Are there age segments within groups? Where appropriate, were gender-specific messages developed for each group and subgroup?

Impact Evaluation

Ideally, after the project has been completed, gender-sensitive indicators that were developed during the project design phase are either: 1) measured again to compare with baseline measurements taken prior to project implementation (pre-test/post-test design) or 2) are measured in the target community and a control community to assess project impact (post-test only design).

Impact evaluation questions are divided into five categories below, though not all will apply in every EE&C program.

1. Impact on Gender Equity

- Has the project increased women's involvement in decision-making within their households and community?
- Are their decisions made independently or are they serving as a proxy for their husbands?
- Has the project improved women's access to, and control over, social services, environmental resources, or infrastructural facilities? What new resources/services are available to them?
- What impact has the project had on relationships between men and women?
- Has the project increased women's ability to act collectively and organize within the community?
- Has the project had any influence on the gender-based division of labor? Has it increased or decreased the women's workload?
- Has the project improved women's status in the community or influenced social norms in any way?
- Are there direct economic benefits for women resulting from their participation, or the participation of men, in the project? Are the benefits reaped by men and women comparable?

2. Policy-Related Impact

- Has the project strengthened linkages between research findings on gender issues and the formulation of environmental policies?
- What gender-sensitive procedures and policies have been learned and adopted by local government officials?

3. Influence on Local Capacity

- Has the number of women members of participating organizations and institutions increased?
- Has their attendance/involvement increased or are they merely serving as proxies for their husbands?
- Has the number of women serving as officers in participating organizations during project implementation increased?
- Has the number of women in participating organizations and institutions who received technical or managerial training increased?

4. Changes in Environmental Knowledge, Attitudes, Beliefs and Practices

- To what extent has the project impacted environmental knowledge differently by gender?
- To what extent has the project impacted environmental attitudes differently by gender?

- To what extent has the project impacted environmental beliefs differently by gender?
- To what extent has the project impacted environmental practices differently by gender?

5. *Implications for the Environment and Livelihoods*

- Has the project enhanced men's and women's roles as environmental managers?
- What impact has this had on project participants access to natural resources and sources of income?

If a follow-up study is possible, ask:

- What are the participation rates for the project by sex, age and socio-economic group?
- Is this an improvement over baseline or control group measures?
- Is the project sustainable? Replicable?

Sometimes our best efforts to seek womens' opinions are frustrated. What if women don't come to group meetings or won't speak with an interviewer? Experience shows trust is worth the trouble of going the extra mile to seek womens' perspectives (see Box 4.4).

BEYOND PROJECTS: PROMOTING GENDER-RESPONSIVE ENVIRONMENTAL POLICY

Policymakers have long recognized that gender and environment are inextricably linked and that programs and projects should formalize that connection.

EE&C can assist in gender-sensitive policy formulation in a number of ways: by promoting and supporting policy through targeted information campaigns to policymakers, by creating an ambience in a country where a particular policy is favored, by creating feedback loops that allow the sharing of stakeholder opinions, and finally by developing fora so that all stakeholders are drawn actively into the policy formulation process.

In 1995 GreenCOM provided technical assistance to USAID/Niamey to support government-led land reform. The project recommended ways to establish a dialogue on land tenure, including a program to inform women of their rights to own land, and a communication/education program showing how women could take advantage of the opportunity being afforded them by land reform.

A country's national education policy can also play a major role in linking gender and environment. Where policies encouraging women's access and participation in formal and non-formal education exist, the programs tend to be more sustainable than where such policies do not exist. The policy can provide the framework to infuse environmental content into gender-sensitive school curricula, literacy programs, and teacher training.

"ENGENDERING" SCOPES OF WORK

NGOs working in EE&C often hire short-term consultants and collaborate with local counterpart organizations to work with communities in designing and carrying out EE&C programs. Steps must be taken to ensure that all project staff—permanent and temporary—understand the need to be gender sensitive. Beginning with GreenCOM's first project in El Salvador, for instance, every consultant hired by GreenCOM has been asked for specific gender information related to their scope of work.

References

Abregana, B.C. 1997. *Let the Women Speak*. The Philippines: GreenCOM Project and the Interdisciplinary Research Unit, College of Arts and Sciences, Silliman University.

Moser, Caroline O.N. 1993. *Gender Planning and Development: Theory, Practice and Training*. London and New York: Routledge.

Pfannenschmidt, S. and A. McKay. 1997. *Through a Gender Lens: Resources for Population, Health and Nutrition Projects*. Women's Studies Project, FHI. For the Gender Working Group, Population, Health and Nutrition Center. Washington, DC: USAID.

World Bank. 1992. Gender Information Framework (GIF). Washington, DC: World Bank.

083101001:740

BOX 4.4

What Happens if You Can't Involve Women as You'd Like?

One of USAID's goals in Morocco includes the development of partnerships between residents and local governments to solve urban problems. A parliamentarian from Fez proposed an exercise in partnership development around the problem of waste management in two peri-urban settlements near Fez: Zouagha Haut and Zouagha Bas. Having only recently been incorporated into the urban boundaries of the city, these neighborhoods received municipal waste-collection services that residents considered woefully inadequate. Neighborhood associations were trying to solve the waste-collection problem, but were hampered by a lack of coordination with others in the community.

GreenCOM convened a participatory workshop of local stakeholders, residents, association members, and municipal government officials, to discuss and agree upon a common problem-solving strategy. The workshop participants included a representative of the executive branch of government, the parliamentarian from Fez, elected municipal officials, technicians from the municipality and other government institutions in charge of urban problems, and representatives of the neighborhood associations.

Of the 30 participants, only two were women, an educator and a government employee. Neighborhood associations, whose membership is open only to men, objected to inviting women to the meeting at all. Therefore, female researchers were sent into the community to fill the information gaps identified in the discussions and to bring the women's point of view to the table. Male workshop participants interviewed other stakeholders not present at the workshop, such as local officials of Ministry of the Interior and waste collectors.

The research findings revealed the importance of obtaining women's perspectives on the problem. Women said that they were paying the waste collectors, though they are not association members. Women often do not know that waste collectors work for the neighborhood association. Women described how waste collectors are impolite and/or refuse to collect waste when there is a short delay in paying the waste-collection fee. Good records of who pays and who does not are not kept. Waste collectors may come more than once in the same month to collect the fee.

An action plan was developed, including a working committee composed of stakeholders. To incorporate gender concerns, a female social promoter and a local project advisor also became members of this committee, and the communication and education component included the development of social networks for women and training for women in development issues.

BEST COPY AVAILABLE

Chapter 5

Addressing the Social Dimension: An Application of Systems Thinking

Robbin R. Hough and Brian A. Day

As professionals addressing environmental education and communications, we occasionally tackle discrete problems. However, more often we confront the needs of an entire company, community, country, or ecosystem.

When GreenCOM is called in to "fix" a situation, we often find that the real need is broader than communication and education. We find that the whole human dimension to a project, program, or policy is missing. People have been left out of the process. Those regulated have not been told what regulations they are subject to. Peoples' use of resources may have been restricted without involving them in that decision. By the time we arrive, policies have been conceived and in some cases implemented; infrastructure has been built; the resource has been depleted without considering the needs or opinions of the stakeholders. We are asked to "sell" a completed—and often inappropriate—program with our education and communication project.

For these situations, some of us are experimenting with tools from the field of cybernetics, or "general theory of systems," which deal with the entire spectrum of complex systems. We have formulated a set of principles designed to help us quickly assess a new system and effectively apply what we know from other complex systems.

The concepts presented in this chapter have proven useful in describing, modeling, model testing, and then reaching policy conclusions and forming communications strategies.

BACKGROUND OF GENERAL THEORY OF SYSTEMS

Over the past few decades a number of scientific fields have made efforts to understand very complex systems: the universe in physics, cell function in biology, atmospheric reactions involved in climate change in chemistry. As researchers began to describe and understand these complex systems, they realized that they might understand their systems better if they compared them with other—seemingly unrelated—systems. They discovered some general principles of complex systems that can help us more quickly understand a new system.

Because this set of principles is derived from a multitude of disciplines, it may seem hard to apply at first. This chapter tries to make the principles more concrete by applying them to a GreenCOM case study in environmental communications from El Salvador. We hope it will help stimulate you to apply this effective new tool for examining complex systems with complex problems, including those in environment and development.

Over the past 25 years much of the material in this chapter has been presented in other media by the authors; we hope that this shortened version will be helpful to those in environmental education and communications. GreenCOM hopes to develop this tool further to make it more helpful to practitioners.

APPLYING SYSTEMS THINKING IN EL SALVADOR

In the 1990s, El Salvador surfaced from years of civil war with practically no social infrastructure. The education system and the natural and built environments of El Salvador were in ruins. As USAID reentered the country it addressed many severe problems. Wisely, USAID understood that environmental education would help the population rebuild its natural resources including forests and fresh water that were the basis of the country's economy.

USAID's global Environmental Education and Communication Project, known as GreenCOM, began a five-year, multi-million dollar effort in this decimated country. We used the general theory of systems—including the 10 principles described below—as a guide to help determine how to begin work.

10 PRINCIPLES OF A GENERAL THEORY OF SYSTEMS

1. **A concrete living system is made up of objects that as a population constitute the mass of the system.**

The first step is to clarify the components of the system. Systems are composed of objects. A living system is made up of objects such as atoms, molecules, cells, organisms, people, groups, organizations and communities. In a living system, the "objects" are themselves decision-making systems. Our studies of living systems can begin with the demography, by examining age distributions, birth rates, death rates, and migration rates. Understanding, however, must go beyond demography to insights into the collective wisdom, mores, and decision-making processes.

In El Salvador, the system we were targeting was the entire population. Because of our focus on environmental behavior, we were more concerned with attitudes and behaviors than with ages or growth rates. Our first step in creating an environmental education (EE) campaign was to assess the population's knowledge, attitudes and practices regarding the environment. We did so through surveys and interviews.

2. **A system is part of a hierarchy of systems, made up of subsystems and supra-systems.**

Systems are made up of subsystems. In turn, each system is also a subsystem of a larger system or supra-system. (Some people may relate more easily to the concept of "nested" systems.) Atoms are subsystems of molecules, which are subsystems of cells. In society, institutions are subsystems of the community; communities are subsystems of states or provinces, which are subsystems of nations.

In the El Salvador case, we identified strategic subsystems of the population. We chose teachers, students, and journalists, all subgroups capable of influencing other subgroups at various levels within the system.

3. **All living systems are defined as objects in coupled motion.**

Every system has objects in coupled motion. Think of the predator—prey relationship in ecology. Or the image of dance partners. We can call them "teamed objects in balance." Identifying these teamed objects and understanding what creates the balance between them is key to understanding the nature of the system. A system often contains many teamed objects.

The most salient example in El Salvador was the public-private partnership. In order to deliver information and materials to our target audiences as quickly and efficiently as possible, we paired our environmental knowledge with the national newspaper's ability to print and disseminate to a large audience. As one result, the newspaper, El Diario de Hoy, created a multi-page, full color, once-a-month insert for children. The insert arrives with the Sunday paper, and each issue spotlights one environmental topic. The insert is named El Guanaquin, after a little armadillo turned into a spokes-mascot for EE; more than 60 issues have appeared so far.

4. **Living systems receive energy inputs from outside. Thus they are open as opposed to closed systems.**

A system's objects must expend energy to survive. Living systems must import usable energy (originally from the sun). We were prompted by this idea to find the outside sources of "energy" that sustain our systems.

The GreenCOM project imported material and approaches, which were very useful to students and teachers alike, developed outside El Salvador and heavily adapted them to fit the culture and ecology of the country.

5. **Each subsystem is defined by its capacities for matter-energy/information input, short-term storage, metabolism, long-term storage and output.**

In function, subsystems are processors with specific capabilities. They take in matter-energy or information, store it, convert it to other forms, and use it to do work. Each subsystem performs a specialized function necessary to the whole system (e.g. consumption, reproduction, transportation, or communications.)

As we address an environmental issue we must identify the capacities of each subsystem. What role do they play? How do they sustain themselves if the resource flows increase or decrease? Can the officials in office carry out a recommended new policy? Can local journalists interpret the new policy to those regulated by it? Can people understand the political, environmental or financial perspectives? Will special interests such as trade organizations advocate a course of action? Can the stakeholders stay active even if the battle is long?

The concepts of short- or long-term storage may be more easily thought of as the ability to withstand increases or decreases in resources—a buffering capacity. Are these subsystems flexible and adaptable? or are they fragile and at risk? Environmentally we often see the biological application of these concepts: fragile ecosystems can be damaged or obliterated by a severe storm but resilient ecosystems may spring back the next season. The social subsystems' ability to withstand fluctuations in information or financial flows are just as critical. Can a fledgling organization manage a big influx of funding? Can a corrupt government support a long-term commitment to sustainable forestry? Capacity development and sustainability are the ways we have come to think of these questions.

In El Salvador, each element of the strategy—printed materials, broadcast slogans, training strategies for journalists was pre-tested before scaling up. Pretesting is a way of testing the capacity of a subsystem to withstand change. Will new information given to teachers change the content of their lessons? Will information distributed to the media change the behavior of their readers and listeners? If the materials did not have the desired effects, how could we improve them before their general release? Pre-testing thus examines the system's capacity for information input, short-term storage, and metabolism (Day, 1997, Hough 1975b, 1996, and Kaplan & Kaplan, 1982).

6. **The structure of a system is defined by the subsystems it can activate, by the supra-systems that may activate it, and by the linkages through which the activations take place. Subsystems are activated in response to changes in other subsystems.**

A system's structure is the total of all the relationships of its subsystems. These relationships are set by the capacity and connections of the channels among the subsystems through which matter-energy or information flows in and products flow out.

Any changes in information, energy, or resource flows activate various subsystems. For example, when the human body (a system) is exposed to a disease, our immune systems (subsystems) are activated to ward off the threat. Likewise in communities, when resources—natural or financial—increase or decrease, a whole set of actors respond to these opportunities or threats. In countries where GreenCOM has worked, we have seen a cascade of positive and negative reactions to the mere *presence* of the donor resources of money, training, technical assistance and potential contracts. These are all natural subsystem responses to a change in resource flows. We can not only understand these changes, but also plan our education and communications activities to address them. For example, donor resources can distort local salaries and create a new social structure. When these resources are withdrawn the project can collapse. We need to consciously design programs that can continue without outside support by putting in place the knowledge, training, funding skills, and facilities to allow continuation.

In El Salvador, people needed information about what was being done by government, the private sector, and what they needed to do for themselves to protect the environment. To serve those needs, GreenCOM worked to train a cadre of reporters to cover the environment. The coverage of environmental issues not only increased peoples awareness, but also increased the relative importance that both individuals and political leaders gave the environment.

By providing additional capacity building resource—training to journalists—the relative relationship between a number of subsystems changes. The nature of coupled motion has been changed.

7. **A system may use energy inputs to add more objects, to change the linkages or relationships among its subsystems, or to produce an output.**

A system can choose to use its energy in any of these three ways. The choice is often determined by the systems stage of development. Before a system can grow or develop it must have the critical mass of objects. As it grows further it develops relationships with other subsystems (coupled motion). After growing larger it can produce more products. (Hough, 1975). When examining international development issues, many focus on increasing the production of products. But the strength of a society is its ability to sustain the relationships that provide its own continuity—the relationships between subsystems—developing the important coupled motion that allows for sustainability. Training, a form of capacity-building, is one way to improve the relationship between subsystems—of orchestrating the nature of coupled motion. A system that becomes more efficient in its use of energy and information may be able to produce more products without a great deal of growth.

An example of how an energy input changed the linkages among subsystems is an environmental education training workshop for 5,000 teachers in El Salvador. The workshop included demonstrations of interactive methods of teaching. These, methods, when put into practice in the classroom changed the relationships between teachers and students.

8. **Growth creates form.**

A system's form is its outward appearance. When a system grows, its form changes. If growth takes place as an increase in the population of objects, the system becomes larger and requires more energy inputs to sustain these objects. If growth comes from changes in the relationships among teamed objects, then the system may not become physically larger, but new subsystems are developed with new capacities and complexities. Growth and change in form can cause confusion among objects and subsystems until a new order is established. For instance, the growth of the Internet during the 1990s created some confusion among computer systems managers. Some managers thought their mainframes would be overwhelmed by the rapidly growing message flows. However, the growth took a different form. Rather than relying on centralized mainframes and dumb terminals, computer systems have become comprised of decentralized servers and intelligent terminals all of which interact with the Internet.

Another example of the second type of growth described above—in which growth comes from changes in relationships among subsystems, comes from El Salvador. When journalists were trained in environmental issues, they responded by creating a new institution: an association of environmental journalists. Hundreds of articles on the environment now appear in print and broadcast each year. The association holds a national awards ceremony for the best environmental articles published each year; the ceremony is attended by up to 800 people.

As the public became better informed by this increased press coverage, a popular movement *developed. The energy of this movement was focused in a "national encounter" for environmental education, bringing together 1,000 people from all walks of life to help set policy for a national environmental education strategy.*

9. If a system's energy exports exceed its energy imports the system is entropic.

While a system may operate on stored energy for a time, if less energy is coming in than going out, the long-term will see vital maintenance tasks ignored, with resulting losses of objects, links among the objects and/or coupled motion. The system becomes stressed by the loss of the channels through which matter-energy/information is received or by the inability of an internal subsystem to sustain its coupled motion. Most biodiversity concerns and nonrenewable resource questions are concerns about entropy, or the death rate or use rate exceeding the birth rate of objects in the system.

Inputs provided by an international donor in the form of training, materials development, and organizational skills all serve to offset the tendency toward entropy. We also involved both public and private sectors, so that when the project ended, the processes and products will live on. Often involvement of the private sector will lead to the sustainability of a project because the firm has additional incentives to keep the project going. El Guanaquin, *for example, is now free standing due to financial inputs from the private sector. The national environmental journalism awards, originally project-based, held a successful first annual event without direct project involvement.*

10. Structure limits growth.

In centralized systems, the distribution of products depends on the processing capacity of a single, central object. In decentralized systems, distribution may be achieved in many ways without using any single component of the system. Every structure comes with its own limits and needs for sustainability. Devising structures that can sustain systems is what we are all trying to do. Where can providing the right information in the form of education or communications support the system? This is what we are trying to learn.

To increase growth, the system must be decentralized, with many subsystems engaged. In El Salvador, we managed to enhance the effectiveness of the EE campaign by engaging multiple subsystems—media, teachers, students. Monitoring and evaluation steps told us how well this worked. We ran separate evaluations of effectiveness among schoolchildren, teachers, and the general public.

Using this set of principles requires one to back away from the details and see the broad view. It offers the potential to identify new windows of opportunity to improve environmental problems. As mentioned elsewhere in this book, human or social portions of environmental problems are often overlooked in the process of protecting a reef, a wetland, a watershed or an endangered population. Nearly all environmental problems are human behavior problems. As human beings ourselves, we needs to back away from daily details to really understand why people behave as they do. People usually have very good reasons for why they do what they do. Often, a good systems analysis of the situation will offer surprising and effective options for solutions.

References

Day, B.A. (1997.) Keeping Resources from Collapse: Using a Systems Perspective for Strategic Communications, Advances in Sociocybernetics and Human Development, Vol. V. Canada.

Hough, R.R. (1975.) "A Paradigm for the Application of a General Theory of Systems," *General Systems and Organization Theory* in Arlyn Melcher (ed.), Kent State Univ. Press.

Hough, R.R. (1996.) Doomsday, The Internet, Diversity and Sustainability, *Systems Research*, Vol. 13 No. 3, pp. 287–292.

Kaplan, S. and Kaplan R. (1982.) Cognititon and Environment: Functioning in an Uncertain World, Praeger New York, republished by Ulrich's, Ann Arbor, 1989.

Section 2

Planning EE&C Programs

Chapter 6

Conducting a Rapid EE&C Assessment

Richard Bossi

To design an environmental education or communication program, it is important to begin with a sense of the history of the environmental issue, knowledge of the key institutions and individuals, and an idea of which options are possible. While local program organizers may know this information very well, asking someone with a fresh perspective to provide an outsider's view of the situation. External donor institutions rely on this type of assessment before a project is conceived.

This chapter provides suggestions for situations in which an individual or team obtains a rapid assessment of a situation—a quick, clear snapshot of the existing state of environmental education and communication (EE&C) in a particular country, region, community, or a specific development project or institution. Resources—notably financial, personnel, and time—are usually limited (the typical rapid assessment is completed in 5–10 days).

Creating an accurate portrait can be challenging. But any information and recommendations stemming from a rapid assessment can prove invaluable in helping program managers identify both the obstacles to, and potential for, upgrading EE&C technical capacity. And, when projects are still on the drawing board, an assessment can be equally useful in integrating the fundamentals of effective EE&C processes with all project components.

In GreenCOM's experience, rapid assessments are conducted by USAID staff or consultants in the early stages of a project. In some cases, more lengthy assessments are part of an overall strategy to provide regional assistance and long-term planning, as in the case at the end of this chapter will elucidate.

Simply stated, successful EE&C projects seldom result from the preconceived notions of government planners, international donors, NGO representatives, or other influentials. Rather, successful and sustainable EE&C initiatives are usually built on a combination of inputs from these groups, as well as from project recipients, beneficiaries, and stakeholders.

However, words alone are not sufficient for assessing an environmental situation. People do not always do what they say they do. The assessors should carefully observe whether actions match words.

THE PROCESS IN A NUTSHELL

Whatever the subject, determining a scheme for rapidly collecting meaningful information from various sources—existing documents, in-depth interviews, focus groups, or direct observation—is fundamental to any assessment. Time and resources must be used efficiently to benefit all parties. Any individual or team conducting an EE&C assessment in an unfamiliar country for an unknown program or organization must be prepared to answer three questions:

1. What are the environmental priorities of an agency institution, group, or project?
2. Who is/will be the likely target audience or beneficiary group of any EE&C capacity-building efforts, interventions, or messages?
3. How are both of the above (environmental priorities and target audiences) being addressed now, how were they addressed in the past, and how will they be addressed for the future?

Answers to these questions will enable assessors to determine and recommend:

- Appropriate EE&C implementation channels (e.g., formal, nonformal, or informal EE&C systems);
- The most suitable type of EE&C capacity-building activity (e.g., technical assistance, workshops or seminars, demonstrations, guided practice, experiential learning, among others); and
- The type and level of involvement of EE&C and other technical specialist(s) required to achieve institutional or project goals and objectives, as well as fit the actual situation, context (available budget, time frame, other resources, etc.) and, target audience (its environmental priorities, training needs, etc.).

GETTING STARTED: WHO TO TALK TO?

Identifying the root causes of an environmental problem will help you design a realistic and appropriate EE&C solution or response. At the outset, gaining an understanding of the situational context of all of the various stakeholders is imperative. Get respondents to discuss what they perceive as the real environmental priorities or issue. Set well-defined assumptions, ask probing questions, and develop mutually agreed-upon objectives and expectations of the assessment.

Limiting information-gathering efforts to only a single level, type, or class of stakeholder is probably one of the most common mistakes in conducting an assessment. Too frequently—usually because of time constraints—assessments focus on senior officials, high-level organizational representatives, or other prominent leaders, and influential citizens. This can result in a skewed view of a particular situation centering on an institution's outlook and perspective. To ensure a more complete picture, seek out representative comments and viewpoints at all levels of a given organization, as well as among stakeholders, beneficiaries, and groups that will be affected. It is equally important to elicit viewpoints and comments from both men and women, as gender differences can be significant (see Chapter 4). Interview roughly equal numbers of men and women across segments of the private, public, and NGO sectors, such as:

- Government policy and decision makers (at the national, regional, or community-level);
- Institutional/project managers, supervisors, and administrators;
- Influential leaders or opinion makers from the private sector, NGO community, and religious organizations;
- Technicians, instructors, teachers, extensionists;
- Farmers and low-skilled workers;
- Representatives of the national, regional, or local mass media (print, radio, and TV as appropriate);
- Community members, students, or well-defined groups;
- Institutional/project beneficiaries, recipients, or constituents.

Given time and budget constraints, interviewing all groups is probably not possible. To ensure a representative sample, select a number of people from each major category. Rather than relying on more people in fewer categories, cast a broad net and seek representative viewpoints from selected individuals across institutions and society to get a more balanced picture of the issue.

UNCOVERING THE FACTS

Getting people to open up and talk freely is often a challenge. Try to create a comfortable rapport with interviewees before the questioning. Naturally, this will be easier if you know local customs, language, greetings, and manners of social interaction. To facilitate entry into a new setting, have a local counterpart accompany the assessment team and handle all introductions, translate when necessary, and explain the team's reason for seeking their opinions and views.

In all instances, the old adage "honesty is the best policy," is an appropriate rule of thumb. There is no reason to trick an individual into talking. Questions or inquiries should be direct and candid, not imposing or intrusive. Interviewees should be told the exact purpose and objective of the line of

BEST COPY AVAILABLE

Are the EE&C products and materials part of a well-conceived strategic plan or a piecemeal, isolated, one-time product developed to meet a particular situation?

questioning and how the information will be used. Similarly, open-ended questions (where the respondent can freely answer) are more suited to assessment purposes than closed-ended questions (where answers are in categories, such as "yes" or "no"). Answers should never be put in an interviewee's mouth.

Before engaging an individual in conversation, the assessment team should be thoroughly familiar with the interview questions. This same set of questions should be asked of representatives from each of the key groups listed earlier, with vocabulary changes as necessary to ensure comprehension. All individuals interviewed should be thanked for their time and valuable insights.

VERIFICATION

When asked to explain their EE&C activity, most people run to get a set of products to demonstrate their accomplishments. Although these are reasonable indicators of a project's ability to communicate with a specific audience, they should be recognized as mere byproducts of planning efforts, and not confused with project outcomes. Therefore, to capture accurately the state of EE&C competence in an organization, ask organization representatives to do one or more of the following:

- Demonstrate the overall EE&C process that the institution or group uses.
- Demonstrate how programmers develop, test, use, and evaluate their EE&C materials. Ask how they use a particular EE&C product or material in a real-life training event, classroom setting, or in whatever channel or manner they are being used, promoted, distributed, etc.
- Sample the EE&C products and materials. Theses could include, but are not limited to: posters, brochures, curricula, training manuals, newspaper editorials or advertisements, or other print/graphic materials; radio spots/programs, videos television spots and programs or other mass media products and materials; games, puzzles, etc.; interpretative materials, and signage; administrative and technical reports, documents, memoranda, etc.

These steps are important because people do not always do what they say they do; nor does their explanation of a product, event, or process always match their actual execution. Consequently, it is imperative to observe or verify what organizations claim they are doing. This is especially useful as a quick and simple way to determine whether the EE&C materials, products or processes are serving their intended purpose of raising awareness or changing attitudes or behaviors of a target group. Simply reviewing actual EE&C products and processes in use will enable an assessor to identify both strengths and weaknesses. In addition, it will provide insights into what types of EE&C capacity-building initiatives may be needed for the institution. Answers to questions in three broad areas (below) can help assess the training needs:

Diagnostic and Strategic Planning

Has a process been worked out to regularize the execution, production, or distribution of a particular EE&C activity, product, material, or message? Are the EE&C goals and objectives clearly defined? Are the EE&C products and materials part of a well-conceived strategic plan or a piecemeal, isolated, one-time product developed to meet a particular situation? Do the EE&C materials fit within the institution's vision or plan of action? Are gender considerations integrated into the overall process and various project components?

Materials Development

Are EE&C products or materials the outcome of an evaluation process that includes formative research, pretesting, and revising the materials? Do they reflect the interests and informational, educational, or communication needs of the target audience? Or are they the work of well-intentioned individuals who believe they know what their target audience needs and wants?

Do recipients like or dislike the materials? Are they used?

Are the products suited to the learning characteristics of the intended audience? Are there different messages for men and women, boys and girls, urban and rural locations, or does "one size fit all?" Are there gender or other societal stereotypes? Do the messages contain the basic elements of well-designed educational or communication materials?

Has the institution employed an appropriate educational or communication medium to meet its intended objectives with the desired outcomes? Are the products available in sufficient quantities to cover a target audience? Is product quality adequate for the intended purpose and audience? Do products conflict with, or complement EE&C efforts of other institutions addressing similar development issues?

Do recipients like or dislike the materials? Are they used? Do recipients understand the intended EE&C message? Do the intended messages accurately reflect the environmental priorities and concerns of the implementing institution as well as the audience? Do the products contain clearly understandable actions that people can easily accomplish at no or low cost?

Monitoring and Evaluation

Is there a feedback mechanism to continuously revise, modify, or improve EE&C material? Are the materials monitored for effectiveness and impact?

With these questions in mind, an assessment team can enter into an unfamiliar situation and generate a fairly accurate picture of the institutional needs.

PUTTING IT TOGETHER

Field notes are not sufficient. Data gathered must be synthesized and distilled to reveal the essence of the assessment findings and observations. This refining stage is the natural precursor to developing a concise set of recommendations.

In developing these findings, another pair of questions could be helpful:

1. Who is the intended recipient of this information?
2. What is the most appropriate and useful format for presenting your findings and recommendations to this audience?

A written report is usually the most useful form of presentation. However, before pen is put to paper, an oral discussion with key stakeholders, or a short presentation of preliminary findings, may be helpful. This practice session will allow the assessment team to receive initial comments about accuracy of the findings and identify any controversial or sensitive issues. It also serves the invaluable purpose of getting the actors together to focus on EE&C issues, problems, and opportunities for what may be the first time.

With the debriefing over, a formal written report of the findings, observations and recommendations can be submitted.

A brief assessment report should not exceed 10–15 pages. Also, a reader-friendly format, free of technical or academic jargon, is best suited for this type of report. If this is not possible, a glossary of terms is useful.

Funding issues and negotiations with counterpart institutions are usually overriding influences on the actual outcome of an assessment. Therefore, consider presenting all recommendations as a series of options for developing EE&C capacity, rather than a set of prescriptions or directives of what "must be done." This approach will permit donors and host country institutions to shape an appropriate EE&C response reflecting budget realities, time constraints, and environmental priorities. It also will allow them to consider a range of alternatives that can fit their respective strategic objectives and results frameworks.

EE&C ASSESSMENTS IN AFRICA

In 1994, GreenCOM conducted assessments of environmental education and communication (EE&C) activities in five African nations at the request of USAID's Africa Bureau and the Bureau for Global Programs. The goal was to conduct an inventory of programs, people, skills, and possibilities in each nation and synthesize these experiences into one document to provide program direction for these and similar nations. The USAID missions in The Gambia, Guinea, Madagascar, Namibia, and Uganda hosted the consultants who conducted the assessments, providing them with contacts, background, and field support.

The assessments involved four primary areas of inquiry:

- The extent and quality of EE&C work underway.
- The range, quality, and capacity of individuals and organizations involved in EE&C, including government agencies, indigenous and intermediary NGOs, and donor organizations.
- The capacity of communications agencies to provide services (such as printing, videotaping, evaluation research).
- The degree to which gender is incorporated in the design, implementation, and evaluation of current EE&C programs.

These assessments were not "rapid" in one sense—they lasted four weeks. Rather than focus on one environmental issue or potential development effort, the inventories were broad sweeps of existing programs, with suggestions and recommendations from both interviewees and consultants.

THE NAMIBIA EXAMPLE

Each consultant approached the task with different resources and background, but the basic approach to conducting an assessment was consistent. In Namibia, for example, the existing Namibian Environmental Network was eager to use the results of the assessment as its own inventory of EE&C programs and possibilities (Monroe, 1994). Individuals were interested in being represented in the document with their own visions of the challenges and future, as well as suggesting other people and programs that should be documented. When no new names were provided through this "scatter gun" technique, the assessment was deemed fairly complete. Below are some of the agencies contacted by phone or visited.

Government Agencies

Ministry of Education and Culture
  Ongwediva College of Education
  University of Namibia
  Adult and Continuing Education
  Technicon
Ministry of Environment and Tourism
Ministry of Youth and Sport
Ministry of Fisheries and Marine Resources
Ministry of Agriculture, Water, and Rural
  Development
Ongwediva Rural Development Center

Environmental Education Programs and Centers

Okatjikona E.E. Center
Namutoni E.E. Center
Wereldsend Environmental
Conservo
Namibian Animal Rehabilitation
Research, and Education Center
Cleanup Campaigns
Etosha Ecological Institute

NGOs

Rossing Foundation
Namibian Nature Foundation
Wildlife Society
Namibian Development Trust
World Wildlife Fund
Onankali Nursery
GECCO
Cheetah Conservation Fund
Nyae Nyae Development Fund

Donor Agencies and Projects

USAID—LIFE and READ
US Peace Corps
SIDA—Enviroteach
Denmark—Life Science Project
GTZ—SARDEP
British Council

Other

Farmers Union

BRICKS Community Project
Social Impact Assessment and Policy Analysis Corporation
Radio and TV stations

In Namibia, interviews with environmental education program people used the following interview guidelines:

- Please describe your EE&C program, showing components as feasible.
- Who attends, by gender, by ethnicity, by geography?
- What objectives are met?
- How does this program fit into other learning events?
- Who does not attend, and why?
- What do you see as barriers to more effective EE&C programs in your region?
- What suggestions do you have for overcoming these barriers?
- If you could change anything, what would you change?
- How does this program interact with those in other regions, other Ministries, etc.?

The responses were written into a summary of each program under the following headings:

- Background
- EE&C Activities
- Funding and Capacity
- Wisdom Shared

The assessments from all five countries were compiled into a general description of EE&C in these nations, along with recommendations for how EE&C programs could be developed, enhanced, and supported (GreenCOM, 1996).

Because of the breadth and depth of interviews, many recommendations flowed from these rapid assessments regarding policy work, planning, implementation, materials development and dissemination, school-community linkages, and out-of-school youth. In addition, the researchers were able to recommend strategies for agricultural extension agents, site-based interpretation, and media and arts campaigns. (See GreenCOM, 1996 for the full list of recommendations.)

References

GreenCOM. (1996.) *People and Their Environment: Environmental Education and Communication in Five African Countries.* Washington, DC: USAID/AED.

Monroe, M.C. (1994.) *Environmental Education and Communication in Namibia.* Washington DC: USAID/AED.

Chapter 7

Formative Research

Orlando Hernández

Although it provides the program manager with basic information, a rapid assessment is only rarely sufficient for designing a program. Formative research comes next.

Formative research is conducted in the early stages of designing an environmental education or communication program to define: the target audience(s), the convincing messages for each audience, the packaging of the messages, the media mix, and the ideal frequency of exposure to the message. Participation of stakeholders in formative research contributes to producing a higher quality research project by keeping the focus on issues important to the community.

Formative research helps the practitioner:

- Identify behaviors to promote.
- Identify the knowledge and barriers, or the facilitators to, desired behaviors that messages need to either overcome or strengthen.
- Identify central themes and messages comprising EE&C interventions

Behavior identification involves selecting among the ideal behaviors. All ideal behaviors may not be possible. Reality checks should help determine which ideal behaviors are possible in certain contexts. Long lists of ideal behaviors may be reduced to shorter lists on which EE&C interventions can focus.

Once target behaviors have been identified, their ***external and internal determinants*** must be defined. External determinants include contextual factors that may influence whether or not people will adopt the desired behavior. They could include public policies supporting specific actions or access to technology and products. Internal determinants include: knowledge, beliefs about what the adoption of target behaviors will or not help accomplish, beliefs about social norms that exert pressure on individuals to adopt or perform those behaviors, and the skills necessary to perform them. The study of internal determinants requires comparing "doers" and "non-doers" of the target behaviors, and also requires comparison by gender.

FORMATIVE RESEARCH IS...

Formative research is any research that helps define the content of an intervention. It may be either primary or secondary research, and can be qualitative or quantitative. Often, secondary research is undertaken first to find out what previous initiatives others have done about the same issue and try to understand the barriers they encountered. Once that step is completed, primary research, strengthened by adding the results of earlier efforts, may be conducted.

The importance of formative research is reflected in the questions it can answer:

- Who are the target audiences?
- What messages will be conveyed to each one of those audiences. What major themes will be addressed, what do we want people to know and/or do, what convincing evidence will be presented to support the messages?
- How will the information be packaged? Who will present the messages? What format will be used to present them?
- Through which channels will the information be conveyed?
- When should the messages be disseminated and how often should they be repeated, particularly if mass media are used?

Communicators often begin with a promotional idea that may not influence behavior, and may in fact be a waste of time and money.

FORMATIVE RESEARCH IS NOT...

Formative research is not "baseline research," which is part of an evaluation strategy generally using a pre-test/post-test design to assess the effects of an intervention. Baseline research occurs before program implementation to assess target audience attitudes about particular messages. It should not be conducted to help make decisions about program content or the audience itself.

STAKEHOLDER PARTICIPATION

Stakeholder involvement is an important element of formative research and can take place in a number of ways. Stakeholders can participate in all stages—setting up research objectives, developing research instruments; and collecting, analyzing, and interpreting data. Their participation in any of these phases usually contributes to a higher quality product.

The major advantages of stakeholder participation include developing an appropriate research agenda, ensuring action-oriented research, obtaining more trustworthy information, developing information ownership, and correctly interpreting collected data. All this information will be used to translate research findings into workable EE&C programs.

STEPS FOR FORMATIVE RESEARCH

To reach its objectives, the design of an EE&C program requires several basic steps; the first three are described in this section.

Step 1: Identify Behaviors

GreenCOM recommends that intervention planners start with identifying what behaviors to promote. Communicators often begin with a promotional idea that may not influence behavior, and may in fact be a waste of time and money. If the purpose of the intervention is to change behavior, the first design step is identifying what the target audience is expected to do. For example, while the short life span of a landfill may be important to the experts, the general public will probably not find this knowledge useful. Information about *how* to recycle, presented in the context of why it is important, may be the primary need.

Identifying the desired behaviors will facilitate both choice and segmentation of audience. Traditionally, audience segmentation has focused on socio-demographic and socio-economic variables. However, segmentation, based on environmentally-friendly or unfriendly behaviors currently in practice, offers the opportunity for more focused EE&C programs. For example, people who have tried to recycle household waste may need different messages than those who have never recycled.

Step 2: Study the Behavioral Factors

Understanding the factors that facilitate or hinder the performance of behaviors—including what the audience knows, believes, and cares about the issues—is the second step. A theoretical framework is used to establish the formative research parameters (see Chapter 2). Factors to be considered may be external or internal to the individual—external may include policies, institutional support, availability of a given product, or market incentives, while internal may include knowledge or skills, social norms, and perceptions of individuals about what others want them to do. These become the behavioral motivators that EE&C programs can affect.

Depending on available findings and the complexity of the task, the second step may be divided into two stages. During the first stage, qualitative research can help identify the range of relevant external and internal behavioral determinants. This phase may employ in-depth individual interviews using a semi-structured instrument and open-ended questions, or use focus group discussions and rapid appraisal techniques.

Data obtained during this stage can be used to construct closed-question surveys to obtain additional information from individual respondents. The findings are then used to obtain further information from target population samples. Statistical analysis of the data can help identify which factors predict the behaviors. For example, are the behaviors predicted by internal or external factors? In either case, which play a predictive role?

Quantitative research techniques can help explore and test the validity of "hunches" identified during a qualitative research phase. The statistical analysis will provide clarity and enable program managers to establish quantitative links between the behavioral determinants and the behaviors, as well as determine the magnitude of these relationships. This will help prioritize and select the determinants for use in the EE&C program. Consequently, results of this analysis are essential in identifying and developing message content.

Step 3: Identify Central Themes

The third step is to identify the central program themes. These may be common denominators for different aspects of the intervention that provide the context for the behaviors to be promoted. For example, a recycling program may develop a theme that conveys the importance of neighborhood improvement, or of health and cleanliness (see Box 7.1).

Communications materials promoting the central theme(s) are then produced. Normally, rough versions of those materials are pre-tested to make sure that they are understood by the target audience(s) and are sufficiently persuasive. Although some may consider this research "formative," it is described under

BOX 7.1

Formative Research Identifies Theme

In Machala, Ecuador, researchers developing a recycling program asked participants in a formative research study to indicate whether household waste was a problem and, if so, why. The responses were grouped into three categories: health, aesthetics, and environmental pollution. Respondents said that waste either attracted flies and rats that cause disease, or was directly responsible for people getting sick. For example, if they walked through rotting waste, got home, untied their shoes, and touched their eyes, they could end up with an eye infection. The health-related concerns were mentioned more frequently, particularly among the poor who comprised the majority of the population and lived in neighborhoods where daily, nearly 45 metric tons of solid waste accumulated in vacant lots.

As a result, researchers suggested to program designers that health maintenance was the most important factor for the audience in resolving the solid waste problem. Consequently, the new waste collection services could be positioned as a contribution to the health of the population. With this in mind, "Better Health for All" was considered a possible central theme to serve as a consistent thread throughout the communications messages and materials (e.g., posters, flyers, brochures, decals, radio spots).

Because research also showed that a waste collection system associated with the municipality would be better accepted by the audience, the messages could also stress that the municipality was providing the waste collection service.

Research also showed that the most outstanding benefit residents saw in an expanded curbside waste collection service was the reduced "cost" in terms of effort and time by putting out the waste on the sidewalk in front of the house, instead of taking it to a transfer station. As a result, the messages to be disseminated through the intervention could revolve around the following ideas:

To ensure better health for all, use plastic bags to dispose of your waste and place it on the curb twice a week to be picked up by your friendly waste collector working for the municipality. You will save time and effort.

BEST COPY AVAILABLE

pretesting in Chapter 8. A final evaluation should be conducted after the program is implemented.

SELECTING BEHAVIORS

Planners can use several methods to create a list of actions. GreenCOM has used two techniques: 1) consulting experts and 2) forming a team of stakeholders. Two cases illustrate the approaches.

Selecting Behaviors for a Multi-Media Campaign in El Salvador

In 1995, research was conducted in El Salvador to support the development of a multi-media campaign to increase environmental awareness among the general public. As part of this exercise, six major unifying topics under consideration were pretested. One of the first findings was that the target audience was interested not only in understanding the magnitude of typical environmental problems in El Salvador, but also in having a sense of what could be done to tackle them. As a result, public and private sector representatives with extensive environmental experience met to determine actions that the general public could perform that would have a positive effect on the environment.

The meeting generated a list of 46 actions, divided into three categories, that could be implemented by: 1) everyone 2) urban dwellers and 3) rural residents. To determine their viability, eight focus groups were conducted with men and women representing the rural, peri-urban and urban dwellers from three regions of the country (i.e., Western, Central and Eastern). Focus group participants were asked to rate the proposed actions into three categories: "easy to do," "not so easy," and "difficult." They were also asked to explain the reasoning behind their choices.

As a result of this exercise, 20 of the 46 actions were classified as feasible (see Table 7.1). Criteria used by study participants to determine feasibility were:

- Extent to which actions generate personal gains and easily become new habits.
- Time and effort required for implementation.
- Cultural acceptability and financial implications.

Table 7.1 List of Viable Environmentally Friendly Actions from El Salvador

Target Audience Actions (In Descending Order of Viability)
General Public
• Turn off unneeded household lights
• Take care of trees you planted
• Protect wildlife and don't buy wild animals for pets
• Carry a plastic bag for trash generated when driving
• Empty trash bags in cars at gas stations
Urban Dwellers
• Save water by turning off faucets when not using them
• Save water by sweeping, not washing your floors
• Take out the garbage when the garbage truck comes
• Discard snack wrappers in trash bins
• Put trash in the bins and cans provided in public areas
• Iron only twice a week to save electricity
• To save gas, start your car when everybody is seated
• To save gas, check the tire pressure when buying gas
• To save gas, tune up your car periodically
Rural Residents
• Learn to trim trees for firewood
• Put out fires after cooking
• Use crop debris instead of wood for fires
• Bury garbage instead of burning it
• Bury your garbage instead of throwing it in the river
• Wash fumigation tanks away from rivers
• Take soap wrappings home after washing in the river

Selecting Behaviors in a Sustainable Land Use Program in Ecuador

An ecological reserve in northwest Ecuador, Cotachi-Coyapas covers more than 200,000 hectares and ranges from 100 to almost 5,000 meters above sea level, representing multiple ecosystems (Booth, 1996). USAID funded a sustainable land use program, the SUBIR Project, with buffer zone residents in the southeast of the reserve. One program objective was to limit agricultural expansion in the reserve by promoting intensive use of existing agricultural plots. A multi-disciplinary team—project staff, local counterparts, representatives of community groups and local farmers—identified 27 ideal behaviors that farmers in the area should implement. However, after observing which behaviors have been adopted and the reasons for their adoption, the list was expanded to include a total of 30 behaviors. Many of the original ideal behaviors were fine-tuned to fit the local conditions. The final of list of behaviors negotiated with extension agents after the field observations of farmers appears below.

Through a series of workshops and meetings, the multi-disciplinary team defined the overall goal and five objectives of the project, as well as the ideal behaviors for each of the five objectives. Research was then conducted with the target audience to answer two questions:

- What difference exists between ideal and actual behaviors, if any?
- What factors have influenced farmers implementing the ideal behaviors to adopt them and what factors have prevented non-adopters from doing so?

Two research instruments were used: structured observation and in-depth interviews. Structured observations were done using an Ideal Behavior Observation List. Fortunately, most of the ideal behaviors—such as where and when to plant, and how pesticides were used—could be observed; only a few required verbal reporting. The Observation List was pretested in the field before final use. Members of the multi-disciplinary team, including farmers, collected the data. An in-depth interview guide was developed and researchers were trained in interviewing techniques. The training addressed issues such as how to begin and end an interview, questioning and probing techniques, and nonverbal communication.

The pre-test of the instruments demonstrated that it took more than one person to conduct an interview. Consequently, interviewers worked in pairs: one person was the interviewer and the other the note-taker. After each interview, the pair reviewed the observations and notes, compared what had been seen and heard, and arrived at agreements. Two communities in the buffer zone were selected based on the following criteria: altitude (lower vs. higher), concentration of households, and amount of time where the project had worked in the community ("old" vs. "new" communities).

Because the list of possible ideal behaviors was long, a decision was made to select project participants and non-project participants in each community. A total of 18 participating farmers were interviewed; equal numbers for project and non-project participants were retained. Thirteen respondents were male and five were female. Results were graphed and analyzed by the multi-disciplinary team.

From these observations, behaviors were selected in two workshops with the participation of local farmers. In the workshops, researchers shared the findings and their recommendations based on the application of a behavioral analysis scale. Discussions at the workshops helped decide what behaviors to focus on and helped fine-tune those behaviors (see Table 7.2).

IDENTIFYING BEHAVIORAL DETERMINANTS

Identifying the relevant determinants is an important step in developing an effective EE&C program. As seen in Chapter 2, different theories about behavior change have different assumptions about which factors are most powerful in influencing an individual to start a new behavior. Through focus groups and interviews, GreenCOM can better understand the audience and the determinants of their behavior. As noted earlier in this chapter, external determinants may be policies and regulations, access to materials, and availability of products or services. Internal determinants include an assortment of variables, such as knowledge, attitudes, social norms, skills, and competence.

Identifying determinants is a bit easier when comparing information from the selected behaviors'

00833100101018472

Table 7.2 List of Behaviors Promoted by Sustainable Land Use Program in Ecuador

Specific Behaviors

- Pest and Disease Control: prepare the soil 20 days before planting
- Lay prepared soil fallow for a minimum of 20 days

Use pesticides and fungicides as follows:

- January to May: products with blue labels
- June and July: combine organic and green labels
- August and September: only organic
- October and November: combine organic and green labels
- Rotate short-cycle crops

Fertilization

- Use chemical fertilizer only after a soil analysis indicates it is necessary in the minimum quantities recommended mixed with organic fertilizers
- Cultivate at least three ecologically compatible crops
- Cultivate at least three income-generating crops
- Cultivate at least three crops for family consumption

Soil Conservation

- Open fire breaks before burning land for cultivation
- Burn only the areas to be planted immediately
- Burn fallow land against the wind
- Do not burn stubble
- Plant crops on the contour
- Plant commercially viable fruit trees or forestry species, establish live fences on the contour within the plot

Soil Quality Maintenance

- Incorporate organic material in soil preparation
- Incorporate organic material during the growing season

Multiple Use Forestry

- Do not cut down forest to cultivate grass or crops

Management

- Cultivate existing agricultural fallow land instead of opening forest areas

Water Conservation

- Keep trees for 50 meters around springs
- Keep trees for 10 meters along river and stream banks

Guinea Pig Management

- Raise type one (purebred) guinea pigs
- Raise guinea pigs in cages
- Feed guinea pigs: ground corn, king grass, sugar cane or corn leaves, and salts and minerals
- Pick the best of a litter for future breeding
- Put maximum ten females with one male

"doers" and "non-doers." The two following cases from Ecuador and Egypt suggest how to locate doers and non-doers, what questions to ask them, and how to analyze the resulting data to reveal the behavioral determinants.

Waste Separation: Doers and Non-doers in Quito, Ecuador

In 1993 the Municipality of Quito initiated a pilot recycling program in 11 inner-city neighborhoods. The program required participants to separate garbage into three categories: organic kitchen waste, recyclable paper, plastic, glass and metal trash, and non-recyclable wastes. Waste was collected by type on different days. Neighborhood micro-enterprises were responsible for garbage collecting and disposal, reducing the cost of transporting the waste to a landfill outside Quito. Some micro-enterprises used organic waste to produce compost and sold recyclable waste to intermediaries.

However, recycling rates dropped over time in the neighborhoods that had participated the longest in the program. GreenCOM's study explored ways to reverse these deteriorating recycling rates.

The study was conducted in four neighborhoods. Selection criteria included socio-economic level, access to alternative garbage collection systems, and population density. Qualitative data were gathered through focus group discussions

083101001[illegible]

Non-doers viewed waste separation as a hard, time-consuming, and dirty task.

with neighborhood committee members, in-depth interviews with micro-enterprise managers, and focus group discussions with household residents in both program control neighborhoods. Table 7.3 lists the interview questions. Pilot program participants were divided into two subcategories: doers (who followed the collection regime) and non-doers (who did not). Individuals were assigned to a category based on information from their garbage collectors and verified by a research team examining content of curbside garbage put out for collection by the micro-enterprise collectors.

The study revealed that perceptions about waste separation could be grouped into four areas of concern: financial, development-related, self-growth and self-image, and the time and effort required to separate waste.

Followers differed from non-followers on a number of beliefs such as the benefits of sorting waste for recycling. Doers perceived waste separation as a fast process that made handling waste easier, since wet and dry garbage were deposited in separate containers. Non-doers viewed waste separation as a hard, time-consuming, and dirty task. Non-doers had the misperception that separation occurred after different waste products had been deposited in one container. For them, separation implied sticking their hands in the garbage to separate the waste. In addition, a striking contrast between doers and non-doers was the role attributed to self-image. For the former, waste separation gave them a positive image with neighbors and family members. For the latter, waste separation was a demeaning task fit only for scavengers.

Findings from a subsequent quantitative study, using a pre-coded questionnaire with a sample of residents from neighborhoods participating in the pilot program, revealed that social pressure to separate wastes is part of the mix of determinants. However, the sources of that social pressure vary by gender. While social pressure from neighbors is a predictor of waste separation for men, social pressure from both neighbors and family members is a predictor for women.

Table 7.3 Formative Research Questions asked in Quito

- How would you define waste?
- What types of waste are there?
- How many places to dispose of waste are there in your house?
- Where are they located in the household?
- What types of waste disposal containers do you use in your house?
- Who in your household is in charge of handling the waste?
- What happens to the waste you dispose of? Where is it taken?
- What does it mean to separate waste?
- Why would one separate waste?
- How does one separate waste?
- Is waste separation practiced in your house?
- Who does it?
- What advantages do you see in separating the waste?
- What disadvantages do you see in separating the waste?
- How do you get rid of cardboard? Newspapers? Glass? Metal? Plastic? Kitchen waste? Bathroom waste?
- What made you get rid of cardboard that way? (Same questions with newspapers, glass, metal, plastic, kitchen waste, and bathroom waste)
- Who has say in how you dispose of the waste generated in your house? Who else?
- Who would approve of us separating waste?
- Who would approve of giving different types of waste to collectors on different days? Who else?
- Why?

Efficient Water Management: Doers and Non-Doers

GreenCOM helped the Ministry of Public Works and Water Resources (MPWWR) in Egypt implement a campaign to make the general public and farmers aware of a nationwide water scarcity. For centuries, the Nile River had provided Egypt with an abundance of water. However, with the construction of the Aswan High Dam, Egypt agreed to share the

BEST COPY AVAILABLE

C3

waters of the Nile through a pact with neighboring countries. The amount of water Egypt can release from the High Dam is now 55.5 BCM (billion cubic meters) per year. As a result, in the past 10 years Egypt has gone from having a water surplus to a water deficit. The nation now finds itself using more water than the treaty allows, necessitating the reuse of water that is not overly polluted.

MPWWR requested assistance from GreenCOM to develop a communication intervention based on the concept that Egypt had a fixed amount of water available and, as the population increased, each individual share would be more limited. This strategy was to serve as a base for future interventions directed at helping users conserve water. The basic assumption of the first campaign was that increased awareness about water scarcity would lead to the adoption of water use efficiency and conservation practices by farmers.

Formative research was conducted to guide decision-making for the first campaign. GreenCOM trained staff from the Water Communication Unit (WCU) of the MPWWR in qualitative research methods, data analysis, and interpretation. Data were analyzed and interpreted by staff with guidance from GreenCOM.

The research was conducted in three cities in different regions: Damietta, Al Fayyum, and Aswan, with each region having different levels of access to irrigation water. Data were obtained through focus groups and in-depth interviews with both male and female farmers interviewed separately in each region.

Prior to conducting the research, MPWWR technicians suggested that the communication intervention focus on the following topics:

- The Koran tells us that water should be used wisely
- Egypt has limited water sources, the Nile is the major source
- Past droughts have had negative consequences on agriculture in the Nile River
- Basin Water supply is fixed by treaty to 55.5 billion cubic meters per year
- Demand for water has increased over time, given a growing population in Egypt
- The increased demand comes from different sources: industry, farmers, and domestic users
- Per capita consumption of water in Egypt is different from that of neighboring countries
- Water scarcity in the past has been associated with wars in the region. Future regional conflicts could also be associated with water scarcity
- Several policies and projects have been implemented by the public sector to conserve water and prevent water pollution
- Irrigation water overuse may not increase productivity, yet it may reduce water availability and aggravate water scarcity

C4

The formative research was designed to find out whether farmers were already engaged in water conservation practices, the role that awareness about water scarcity played in motivating farmers to perform those practices, and to identify what other psycho-social and contextual factors influenced farmers' decisions to conserve water.

The research indicated that farmers were already highly aware of national and local water scarcity problems and had established the connection between the two. Study participants were also acutely aware of how the water supply had changed in recent years, the problems around water pollution; and the impact of population growth on water resources and food security.

Research results also indicated that local issues about water scarcity had the strongest influence on decisions farmers made about water use. Furthermore, water conservation and water management practices were known and had been adopted. They included: irrigating at night to reduce evaporation, leveling the land to facilitate water flow, choosing crops that require less water, and cleaning irrigation canals to facilitate water flow.

According to the research results, the major motivations for the doers included taking care of growing family needs, self-sufficiency, and food security for family members. Farmers practiced these methods because they wanted to conserve water for the future to meet growing family needs. They valued self sufficiency in food and water for the family.

083101001354

Based on these findings, researchers developed a set of new messages that reflected the motivation of the Doers, the farmers who were already carrying out the desired behaviors. They also eliminated some messages from the original list because the farmers did not relate to them. Table 7.4 shows the new messages as well as the messages retained and eliminated because of the formative research.

Formative research contributed to developing the messages conveyed through this campaign and helped program staff see the need to modify their original messages. In addition to helping create a more effective communication campaign with messages that resonated with the intended audience, formative research saved the project time and money by limiting topics.

Table 7.4 How Formative Research Changed the Campaign Messages

New Messages Developed through Formative Research

- Conserve water for the secure future of your family
- Enough water means enough food for your family: conserve water now

Messages Retained from the Original List

- The Koran tells us that water should be used wisely
- Egypt has limited water sources, the Nile being the major source
- Past droughts have had negative consequences on agriculture in the Nile River
- Basin Water supply is fixed by treaty to 55.5 billion cubic meters per year
- Demand for water has increased over time, given a growing population in Egypt
- The increased demand comes from different sources: industry, farmers, and domestic users
- Irrigation water overuse may not increase productivity, yet it may reduce water availability and aggravate water scarcity

Messages Dropped from the Original List

- Per capita consumption of water in Egypt is different from that of neighboring countries
- Water scarcity in the past has been associated with wars in the region. Future regional conflicts could also be associated with water scarcity
- Several policies and projects have been implemented by the public sector to conserve water and prevent water pollution

GENDER CONSIDERATIONS

While the importance of gender considerations in program design are more fully addressed in Chapter 4, it is important to keep in mind that behavioral determinants may differ for men and women. It is imperative, therefore, that data be collected from both men and women separately and that a gender analysis be conducted to determine differences. Multi-disciplinary program teams should, of course, include both men and women—it is important to compare not only "doers" and "non-doers," but also female "doers" and "non-doers," as well as male "doers" and "non-doers." Interventions need to be sensitive to the concerns of both men and women, since messages designed to persuade one group may not necessarily speak to the other.

The importance of understanding different gender perspectives was made clear in GreenCOM's experience with a waste collection project in Quito, Ecuador, presented earlier in this chapter. An analysis of results obtained through formative research to design a recycling intervention in that city revealed contrasting results for men and women. The major differences observed by gender were connected to the following issues: who reaps the benefits of recycling, the self-image that waste separation enhances, and the health implications of waste separation. Men believed that if their family participated in the recycling program, outsiders would obtain the revenue from recyclable sales. The implication was that those funds should be collected by the members of households where the waste was generated.

Women, on the other hand, believed that recycling would generate funds for use in neighborhood development projects and supported the program on those grounds. Whereas men believed recycling to be a demeaning task, women generally

BEST COPY AVAILABLE

felt that recycling would foster their image as industrious neighbors, and, for their relatives, as responsible family members fulfilling their household duties.

Most men did not mention the health implications of separating waste. Women noted that waste separation eliminated vectors and odors and made their houses look prettier. Women against the program also mentioned health implications, particularly with respect to bathroom waste. For them, the program required retaining that type of waste too long in the household, a measure believed to be unhealthy. Surprisingly, women also showed a knowledge of how recycling could benefit the country's economy, such as the fact that providing recycled materials to industry could diminish the demand for imported material, and that recycling could contribute to national development. Neither of these two benefits was suggested by men.

In general, men appeared to be more critical than women. However, women critical of the program expressed opposition for different reasons: the expense of plastic bags, a perceived intrusion into household management, and forced collaboration with neighbors they disliked.

The implications of these results were obvious, as the program had to pay particular attention to men, and to try to bring them on board with the program objectives.

References

Booth, E.M. 1996. *Starting With Behavior: A Participatory Process for Selecting Target Behaviors in Environmental Programs.* Washington, DC: USAID/AED.

Chapter 8

Pre-testing EE&C Products

Martha C. Monroe

Consider these scenarios.

Before printing a new environmental education teaching guide, the organizers asked some teachers to test a few of the activities. The teachers' comments were thorough, (e.g. it is hard to find clear plastic boxes for the groundwater activity, it takes much longer than the specified 45 minutes for students to practice this play, the illustrations imply that all teachers are women, and it would help immensely if the materials provided suggestions for assessing student knowledge after completing each unit). Grateful for such specific suggestions, the organizers incorporated them into the final version of the guide before the production deadline...

The authors of a comic book on water pollution struggled to illustrate the concept of "pollution" without making the character overly negative. In focus groups, non-literate adults and teenagers commented on six potential characters: "This one looks sick; that one looks like a grandpa." After another round of testing, the authors settled on a pollution character who looked serious and sick rather than grandfatherly or mean...

As these scenarios illustrate, a critique of draft material by the intended audience—well before production deadlines—is a vital step. Equally important is asking the right questions so that audience feedback makes a helpful contribution.

The previous paragraph sounds so simple that it should be common sense. It is repeated often in this manual for good reason, however. Time and time again, materials production runs into writing delays and then production deadlines that squeeze out the crucial step of pre-testing. Deadlines are real: publications need to be distributed before the end of the school year, radio plays must be finished for World Environment Day. Sometimes a squeezed budget forces a decision to move the pre-testing money into production. Yet, despite the challenges, pre-testing all education and communications products is vitally important.

To repeat the obvious, high-quality environmental education and communication (EE&C) products result from pre-testing draft materials well before production deadlines. This chapter explores the type of information that pre-testing can provide, strategies for obtaining this information, important differences between using and reviewing the materials, and helpful tips for program managers.

WHAT PRE-TESTING PROVIDES

The process of asking the intended audience to review, comment, talk through, or try out an EE&C product enables the program manager to ask a variety of targeted questions. Some sample questions are provided below in Table 8.1.

Very different information is collected if users are asked to apply the materials in their work—conduct a workshop, teach students, facilitate a meeting—and respond to a series of questions from their experience. This procedure is in fact a much better test of the material. Are directions written clearly? Are the objectives really accomplished? Are the handouts and overheads sufficient? Can the participants follow the delivery? Do the materials meet the needs? Are the materials adaptable to different situations? In this case, a survey or follow-up meeting will help focus the users on the questions that should be answered.

Expert reviewers form another category for pre-testing. Although technically not users, they can

0BB3 001 0001 752

Table 8.1 Pre-testing Questions

For a communications product, ask the intended audience...

- What do you think the main message of this poster/ad/radio spot/etc. is?
- To whom is this message directed?
- Could it be you? Why or why not?
- Does the main character remind you of someone you know? Why or why not (which may be prompted with specific questions about hairstyle, clothing, gender, etc.)?
- What would prevent you from doing the suggested behavior?

For an educational product, ask teachers or administrators...

- Is this activity/poster/filmstrip/booklet something you could use in your class?
- For what grade level is it most appropriate?
- For what subject is it most appropriate?
- Are the illustrations appropriate? Gender-free? Ethnically appropriate?
- Is the vocabulary appropriate?
- Will the activity help you meet your curriculum objectives?
- Would you use this? Why or why not?
- Would you need training to feel comfortable using this?

Rather than asking teachers questions about their student's reactions, ask teachers to conduct the activity and record students questions, comments, or activities. In addition, students could fill out a response sheet.

- Did you alter the activity from what was written? If so, how?
- Did boys and girls respond differently? If so, how?
- Please give some examples of the questions that students asked.
- Please give some examples of student reactions to the activity. Were they engaged? Did they stay on task? Were they confused?
- Did you achieve your objectives? Did your students gain knowledge or skill?

For any product, ask experts...

- Is the information conveyed here accurate?
- Is the message conveyed appropriate?
- If people adopted this behavior, could it make a difference in the problem?

provide critical information that the authors might miss. Distance has a way of providing a valuable perspective.

Drawn from the GreenCOM/Egypt experience, the following example illustrates the pre-testing process and underscores the value of this step in communication materials development.

PRE-TESTING A FARMER'S SURVEY IN EGYPT

In 1998 the GreenCOM/Egypt mesqa or irrigation canal project targeted farmers with a national, comprehensive survey of knowledge, attitudes and practices that included important questions previously unasked on a systematic basis.

GreenCOM designed a pre-test to check many elements of the survey design: the sample frame (a listing of farmers on 240 canals nationwide), the questionnaire, and fieldwork logistics. All would be modified based on the pre-test experience.

The research firm set up the pre-test sample using canals similar to but outside the main sample to avoid using any farmers targeted for the survey. Over 100 respondents were interviewed during the pre-test.

As a result of the questionnaire pre-test, we decided to:

- *Reduce the complexity of some questions*—The pre-test questionnaire tried to do too much, asking about both the farmer's practices on canal-side land, and about land holdings elsewhere. This was burdensome on the respondent, and certainly would have made analysis and report writing very taxing. The final questionnaire asked only about land owned on that particular canal.
- *Make the questionnaire more concise*—It is hard for any researcher to pass up the oppor-

BEST COPY AVAILABLE

tunity to capture every aspect of the subject under investigation by increasing the number of questions. During the pre-test, it became clear that some questions designed to get at different aspects of a subject were interpreted as the same questions, proving burdensome to the respondent and not providing additional substantive information. As a result, these questions were combined.

- *Settle for more general answers*—One set of questions asked how large a fine a farmer would pay in the case of four hypothetical conflicts among farmers. The pre-test showed that farmers found it difficult to specify an amount, so the question about an amount was dropped, leaving simply the fact that a monetary fine would be exacted. Even this lesser level of detail provided rich material for the analysis.
- *Reduce the sensitivity of questions*—One question was so sensitive that it had to be deleted. Increasing farmer participation through cost sharing is an important Green-COM Egypt sub-objective, so the survey sought to measure the willingness of farmers to share in the costs of upgrading the irrigation system. In fact, the Ministry has not adopted this policy, since cost sharing is a highly sensitive matter. The project worked closely with an economist to draw up two apparently simple and straightforward questions concerning willingness to pay to provide continuous flow and to upgrade the drainage system which, through statistical analysis, would yield exact amounts or ranges that respondents were willing to pay.

But during the pre-test, respondents interpreted this question as an indication that the Ministry was contemplating charging for a natural resource, and they responded angrily. This response led the research firm to conclude that the quality of the questionnaire would be compromised by retaining the questions. The Ministry and the project replaced them with two yes/no questions on willingness to pay. The results suggest that the question was not as biased as one might expect, with around 75 percent of male farmers and 50 percent of female farmers saying they were willing to pay.

After the revisions, the questionnaire was used to produce some ground-breaking research. Compromises led to a better rapport between respondents and interviewers, and paid off in results that may be less biased and of higher quality and reliability than those produced by a questionnaire less extensively pre-tested and rigorously modified.

Chapter 9

Evaluation

Orlando Hernández

This chapter provides guidance to EE&C project managers who work with evaluators. It will introduce you to some of the techniques and terms evaluators use, but most importantly it will show you how to design a project that can have meaningful evaluations, not only at the end of the project but throughout its life to keep it on course.

Most project managers make the mistake of not bringing in the evaluator until the end of a project and then not giving him/her a goal against which to evaluate performance. Asking an evaluator at this late stage, "What should we be evaluating?" is meaningless. The evaluator can only measure whether you have stayed on course—he/she cannot suggest destinations.

When involved in a project from the beginning, a good evaluator can regularly tell the manager whether the program is on course or, if not, in what direction it has strayed. With this information, the manager can decide how to get back on track (see Box 9.1).

A mantra for managers is: "Start with the results." If you don't have a precise vision from the outset of how things will look at the end of a successful project, you will have trouble with the evaluation.

Developing this vision is not easy. Indeed, it may be the most difficult part of management. The process should be participative, at least with a management team, sometimes with a wider group representing the target audience. It is usually a long, and sometimes exhausting, process at the end of which everyone commits to the vision and wants to be assessed in terms of it. Once agreed upon, the vision become the program's North Star.

Evaluation is usually categorized as *summative* evaluation, which measures the project success or failure by comparing outcomes with the original goals, or as *formative* evaluation, which measures project progress against ongoing benchmarks and allows the manager to make course corrections.

Formative evaluation is more useful to a program manager, because it provides information that helps the program succeed. Summative evaluation, coming after the program is over, gives a verdict about whether the program achieved its goals, but is of no help to the manager in achieving those goals. (Of course, the results of summa-

BOX 9.1

Keeping the Desired Results in Mind

In Nicaragua, sea-turtle experts were convinced that if local residents just understand the rapid sea-turtle population decline, they would be less likely to harvest eggs. A storybook was written and approved by the biologists that did an excellent job of explaining all the potential disasters that stalk the young turtles until they reach maturity: egg predation by herons, crabs, and coyotes on the shore; sharks; shrimp nets, and even turtle hunters. After giving the story to readers, the program manager developed an evaluation survey that asked about their attitudes regarding egg collection and abiding by the quota system. Only then was it clear that the storybook was not about egg collection and did not even mention the quota system. Fortunately, there was still time to rewrite the story.

BEST COPY AVAILABLE

A mantra for managers is: "Start with the results."

tive evaluation can be useful for people designing new projects.)

DEVELOPING DESIRED RESULTS

The statement of the project's vision—or more specifically its *desired results*—guide the evaluation process, just as they have driven the program development. By operationalizing desired results into measurable statements, the evaluator can reflect upon the degree to which the program achieves these results. Well-stated desired results for educational programs are specific to the situation and share these elements:

1. Each objective targets one and only one thing: a fact, an attitude, a skill. Limit the statement to only one measurement.
2. Each objective specifies an outcome that the participant will be able to perform. The objective is not written from the perspective of the leader (teach about turtles) or the program coordinator (host the workshop). Use appropriate action verbs to define the outcome.
3. Each objective spells out what will be measured in order to meet certain criteria (80% success, three out of five reasons).
4. Each objective is set in a context or a condition (when asked, when given a list of 10 items, where ascertained, which population...).

OBTAINING BASELINE MEASURES

Since the evaluation is designed to measure change, some technique to measure the "baseline" situation is necessary. The following activities may provide this initial information.

- Use the literature or existing data in the agency
- Survey people
- Observe people
- Interview people
- Use information from a comparable site or a former program
- If you didn't do a baseline study, at least ask people at the end of the study how they think they've changed

TOOLS FOR COLLECTING INFORMATION

Each information-collecting tool has a niche in evaluations, and just like an organism in a functional ecosystem, each is best suited to a particular condition. The program manager must match the tool to the need. A variety of equally good evaluation designs can use different tools. As a rule of thumb, choose the tool that is least expensive in time and resources. There are many ways to maximize the advantages and minimize the disadvantages of each option (see Table 9.1).

What is a Research Design?

To evaluate is to compare. Comparisons are needed to determine if an intervention had the desired impact. A research design tells the researcher how many measurements should be done to determine impact, and when those measurements should take

Table 9.1 Information Needs and Evaluation Tools

Data Collection	records, logs, journals, clicker counts
Program Quality	expert review, observation, staff self-analysis, staff performance
Participant Reaction	drawings, photographs, journals, logs, post-it boards, suggestion boxes, comment cards, testimonials, anecdotes, observation
Participant Knowledge and Behavior	surveys, interviews, concept maps, observation, artifacts, photographs, focus groups
Action Research	journals, tape-recorded sessions, observation, etc. to support participant reflection and analysis
Media Impact	phone or mail surveys, count calls, visits
Materials Quality	readability tests, pre-tests, observation
Participant Involvement	participatory rapid appraisal techniques such as discussion groups, engineering models, mapping, sorting photographs, calendars, time lines, trend lines, ranking, pie chart, matrix

BEST COPY AVAILABLE

place. The various comparisons needed to determine net effects of an intervention make up a research design. Designs also dictate whether or not comparisons will be limited to study groups exposed to the intervention or if they will also include groups not exposed to it (control groups).

Three Commonly Used Research Designs

GreenCOM has used three well-known research designs (listed below) to evaluate how education and communication programs changed the audiences' knowledge, attitude, skills, or beliefs. Each one of these designs has different advantages and disadvantages regarding the sources of error. Each can be used in formative or summative evaluation.

Design 1: Pre-Test and Post-Test (Before and After) Studies

This design compares the same type of study participants at two points in time, separated by a period of participation in a program. Differences in scores between one point in time to the other are taken as an estimate of the net effects of an intervention (Rossi and Freeman, 1988).

There are two versions of this design. One version known as the "one-group pre-test post-test design," uses the same group for both measurements. The other version, known as a "separate sample pre-test post-test design," tests people from different groups at each measurement point.

The one-group version is commonly used in education and in communication. It can be used when an intervention affects a specific target group. Despite its popularity, this design embodies several confounding factors that can jeopardize the validity of its results. For example, it does not clearly establish that the intervention caused the measured change in the population. Other variables may have caused any difference detected between the two measurement points. As Rossi and Freeman (1988) have concluded, "the main deficiency of such designs is that they ordinarily do not permit disentangling the effects of extraneous factors from the net effects of the intervention." See "Cautions to the Evaluator," below.

The "separate sample design" offers some improvement over "one-group pre-test post-test designs." If study participants are randomly selected for each measurement, the effect of testing is controlled for. *Maturation issues* (see below) are controlled if the distribution of age is the same in both samples. However, in a separate group pre-test/post-test design there is still a questions as to whether external events that affected all participants might have had an influence.

Design 2: Pre/Post-Test with Experimental and Control Groups

This design is similar to the pre-test/post-test design, but a control group has been added. Thus, the experimental and control groups are both measured before and after the intervention. If an external event influences all participants, it will show up in results from the control group as well as from the experimental group. As before, this design has two forms, one where study participants have been randomly assigned to the study group (the pre-test, post-test control group design) and one where they have not, (the non-equivalent control group design.) In both of these designs it is imperative that the same study participants take the pre-test and the post-test (Fisher, Laing, Stoeckel and Townsend, 1995).

Design 3: Post-Test Only Control Group Design

Post-test only designs are appropriate when baseline data have not been collected, are lost, or are inaccurate, or when the introduction of new subject areas makes pre-testing impossible. This design requires that two study groups be researched after an intervention has ended. The experimental group is exposed to the EE&C intervention and the control group is not.

There are two types of post-test only designs that differ in how study participants are chosen. When there is no random assignment of participants to each study group, the design is called a "static-group" comparison. When participants are randomly assigned to the study group, the design is called the "post-test only control group."

Campbell and Stanley (1966) argue that under the static-group comparison there must be a method of assuring that the two groups would be equivalent had it not been for the treatment. The randomization element added to the post-test only control group design corrects that deficiency. Campbell and Stanley (1966) also argue that randomization can suffice without the pretest in the case of the post-test only control group design.

Rossi and Freeman (1988) define randomization as the chance assignment of potential targets in order to obtain equivalent treated and comparison groups. Randomization requires that every unit in a target population has the same chance to be selected for either the experimental or the control group. An important aspect of randomization is the elimination of the possibility of self-selection. Randomization is different from random sampling. Random sampling allows the selection of units in an unbiased manner to form a sample from a population. Random sampling can be used to choose individuals to participate in a study. Randomization is used to assign each member of the resulting sample to the experimental or control group.

Cautions to the Evaluator: Common Sources of Error

Research designs are chosen based on the sources of error that must be avoided. Common sources of error are listed below.

Contextual events

Contextual events are between two measurements taken to evaluate an intervention that may have influenced the knowledge, attitudes, beliefs, intentions, and behaviors targeted by the EE&C intervention. The changes that may be observed between the two measurements may be due to these events not to the intervention.

Maturation of Study Participants

Study participants may change over time and those changes may influence the results. If there is a time difference between measurements, study participants may have gotten tired or hungry, or, if there is a long time between measurements, gotten older and more mature.

Loss of Study Participants

All participants involved in the beginning of the study may not be available at the end because of migration, loss of interest, or even death. The key question is: are the remaining subjects in subsequent measurements representing either the best, the worst, or the average study participants of the first sample? (See Box 9.2.)

Repeated Testing

The more individuals are exposed to the same questions, the better they may become at answering correctly. When an evaluation instrument is applied before and after an intervention, the first evaluation has an impact on the second one. Responses obtained during the second measurement may be better than those obtained during the first measurement, simply because of the testing effect. Repeated exposure of study participants to study instruments may invalidate research findings. Campbell and Stanley (1966) report that on achievement and intelligence tests, "students tak-

BOX 9.2

Evaluating over Time

A three-year study was conducted to evaluate a program promoting soil conservation practices. Measurements were done at each cropping season to see if study participants were using soil conservation practices such as minimum tillage and contour plowing. At each measurement point, 10–15 percent of the study participants were lost. It was difficult to determine if the participants that were lost were the best or the worst soil conservation farmers. Consequently, it was impossible to determine what impact their loss had on research findings and changes observed over time.

BEST COPY AVAILABLE

Evaluation is difficult because it involves a great deal of thinking, planning, and imagining the future.

ing the test for a second time, or taking an alternate form of the test, usually do better than those taking the test for the first time. These effects, occur without any instruction as to scores or items missed on the first test."

Modifications of Evaluation Instruments and Increased Experience of Evaluators

Evaluation instruments may be refined or modified between measurements either by accident or intention. From one measurement to the next, an original question such as "Can you mention the days when waste is collected in this neighborhood?" can be changed to "Are you aware when waste is collected in this neighborhood?" The changes observed between measurements may be due to the way in which the question was asked each time and not the result of an awareness-related intervention. The experience of evaluators, interviewers and observers can also have a great impact on results. Observers may differ in their accuracy and severity. Both factors can affect results and invalidate findings.

CONCLUSION

Evaluation is difficult because it involves a great deal of thinking, planning, and imagining the future. At the beginning stages of program design, it is often challenging to identify measures of success for each activity. Each of these measures could become a desired result that will guide the development of the program and determine how the program is evaluated.

The broadest definition of the evaluation process begins with program planning. As needs are assessed and formative research conducted to determine initial knowledge, attitudes, and behaviors, a type of evaluation is in progress. Baseline data, collected before the intervention, will help measure changes that can be attributed to the project.

As the project evolves, pretesting is critical for keeping activities on track, by testing elements, making revisions, trying new techniques, and reorganizing activities to best meet the desired results. Observations and interviews help record information about the experiences of the participants.

At the conclusion of the project, a summative evaluation can measure its merit.

Remember, start planning by imagining the results you want.

References

Campbell and Stanley. (1966.) *Experimental and Quasi-Experimental Design for Research.* Boston: Houghton Mifflin Company.

Fisher, A.A., J.E. Laing, J.E. Stoeckel, and J.W. Townsend. (1995.) *Manual para el Diseño de Investigación Operativa en Planificación Familiar.* Segunda Edición. New York: The Population Council.

Rossi, P. And H. Freeman. (1988.) *Evaluation: A Systematic Approach.* Fourth Edition. Beverly Hills, CA: Sage Publications.

BEST COPY AVAILABLE

Section 3

Conducting EE&C Activities

Chapter 10

Building Capacity through Training

Martha C. Monroe and Nina Chambers

Training is a key element of many GreenCOM projects. The trainees may vary from teachers to policymakers to project staff. But in every case, training involves some type of professional development to support a change in practice. Changing practices imply a change in behavior. As stated in Chapter 2, behavior change is more likely in a supportive environment. Successful training programs, therefore, include ways to change the culture, climate, and reward system. They also provide positive reinforcement for the new behavior.

A good training program can be a key element in larger efforts to share information or change behavior. Teacher training can lead to the acceptance and use of a new curriculum about the environment. Journalist training can result in more articles in the public media on environmental issues. Training in desktop publishing can lead to the publication of regular newsletters and attractive materials. In every case the training provides a supportive foundation for new behaviors that are instrumental in achieving societal change.

TRAINING AND PROFESSIONAL DEVELOPMENT

Although any educational activity that passes information from one to another may constitute "training," the workplace context of professional skill training developed when master craftsmen trained apprentices in the skills of their trade. By watching, copying, and then working with guidance, youngsters eventually became adept at new skills through practice. The apprenticeship strategy changed by necessity during the Industrial Revolution when large groups of laborers needed to learn new skills quickly. In these industries, work-force training undertaken by the management continued to follow the traditional "show, tell, do, check" format. Over the decades training has evolved into a more flexible enterprise that is more akin to professional development (Miller, 1987).

In many parts of the world, "training" and "professional development" are two terms for the same concept. The term "professional development" refers to a process through which individuals increase their knowledge and understanding and improve their skills, to perform better in their current positions. Learners have an opportunity to develop their own solutions to problems. They are given leeway to translate the information into their own situation. Echoing tenets of adult education and a philosophy of participation, this type of training is ideal for EE&C programs.

DESIGNING TRAINING FOR THE ADULT LEARNER

The three perspectives described below can be used to design a training program.

Adult Education

Educators who work with adults have developed the following list of characteristics of adult learners that can help trainers think about who will attend the program (Braus and Monroe, 1994):

Adult learners:

- Expect to be treated with respect and recognition
- Need the support of their peers in their learning
- Want practical solutions to real-life problems

Training provides a supportive foundation for new behaviors that are instrumental in achieving societal change.

- Can reflect on, analyze, and share their own experiences
- Can be motivated by the possibility of fulfilling their personal needs and aspirations
- Are capable of making their own decisions and taking charge of their own development.

Trainers should expect their participants to be competent, interested, motivated individuals who may have as much to say as the leaders. Furthermore, not only are the participants skilled and knowledgeable, they may want to share their experiences and learn from the experiences of their colleagues. This exchange of information can be a key part of a training program. Creating an atmosphere that is conducive to helpful, informative, equitable exchange is the responsibility of the trainer.

Cognition

From a different professional perspective, cognitive psychologists might approach the task of professional development by considering how the human brain processes information. Their training program might be designed with the following principles in mind:

- People learn new information as it relates to what they already know.
- Practicing, applying, and discussing information helps create flexible mental models.
- Stories, examples, and role models help bridge the unknown.

The presentation of new information should be carefully orchestrated to resonate with learners and remind them of related concepts they already know. Establishing effective relationships helps insure the new information will be stored and recalled appropriately. One easy way to accomplish this feat is to make sure participants talk about their experiences and what they know.

New information can be presented through examples, models, case studies, analogies, stories, and other teaching methods that help learners build appropriate and functional mental models. By considering these techniques, the initial doctrine of "let people talk" is farther refined into "engage people" in considering the real application of the new information. Such activities allow participants to work with and use the information, arriving at a more thorough and complete understanding of the concepts through this process.

Behavior Change

And finally, social psychologists who study behavior change would remind us that professional development is really behavior change—a process of suggesting and encouraging professionals to use new or adapted skills in their work. The following ideas may be important for a training program to consider from this perspective:

- Behaviors are based, in part, on the knowledge people have about the issue, about how to perform the new skill or behavior, and about the consequences of performing this behavior.
- People have relevant attitudes about the importance of this behavior in solving the problem, their ability to perform the behavior adequately, and the likelihood of their action in making a difference.
- A host of real and perceived barriers may stand in the way of the performance of this behavior.
- A variety of extrinsic motivators (policies, resources, legal threats, time inconvenience, etc.) and intrinsic motivators (building community, self-assurance, feeling frugal, etc.) may work to prevent or encourage this behavior.
- People care about what others think about the issue, the behavior, and their performance of this behavior; social norms are important.

Most training programs include knowledge and deliver that information in a way that motivates and through which positive attitudes are shared. But good training programs are designed to affect more components of the affective domain. Attitudes about competence, the ability to perform skills, and the perceptions of barriers to this behavior can also be shaped. Educators should consider

Engaging participants in discussions should never be jettisoned in favor of a shorter workshop or providing more information.

the ways social norms can be supported or changed by using models, stories, opinion leaders, and shaping a community of like-minded participants into their own norm-producing group.

A COMPOSITE MODEL

These three perspectives provide relevant and overlapping suggestions. Because adults come to training programs with specific needs in mind, with a variety of relevant experiences, and with competing interests and demands, adult training should be different than an education program for youngsters. Because humans are information-processing organisms, it helps to think about how to best convey information so that it can be remembered and used. Because the goal of professional development is ultimately some type of change in behavior, a training program should be designed to reduce perceived barriers and support those indicators that are likely to produce a change.

Workshop facilitators can learn from each training experience and improve future programs through an evaluation program. Successful training programs include materials for supervisors and strategies to provide on-going support. The characteristics of adult learners and guidelines from other fields above can be translated into a model of training for facilitators:

1. Training programs should focus on the work-related issues that participants care about.
2. Participants should be involved in discussing ideas and sharing experiences during the training program.
3. Where possible and appropriate, participants should be engaged in practice.
4. Training programs should provide some choice and flexibility in the schedule.
5. Training programs should include opportunities for participants to record reactions and suggestions for improvements and measure program outcomes.
6. Training programs should consider the supervisors, the reward structure, and strategies to provide on-going support.

As simple as this list might sound, it contains profound suggestions. It is easy for a program manager to fill a training program with a lot of information that people ought to have. But a good trainer will carefully screen this information, assemble a variety of activities and discussion times for participants to use and adapt this information, and design a training program that achieves much more than sharing information. Participants should be able and willing to use that information to improve their work. All this can be achieved by using or adapting the following suggestions.

Focus on Relevant Work-related Issues

The topic, goal, and objectives of a professional development program should relate to the work of the participants. To discover what aspects of their work are most bothersome, interesting, or critical, conduct a needs assessment or a formative research activity (see Chapters 6 and 7). By surveying or interviewing potential participants or their supervisors, a trainer can develop a program that better targets the audience (see Box 10.1).

Involve Participants in Sharing Their Ideas

It is so important to engage participants in discussions that this aspect of a training program should never be jettisoned in favor of a shorter workshop or providing more information.

Training program planners hope participants will learn and accept new information, remember it, and use it. To help them understand new information and incorporate it into existing mental structures, workshop leaders should provide an opportunity for participants to express their ideas, to "try on" new concepts, and to relate the new information with their own experiences. It may be particularly important for the trainer to hear both what and how the participants' think about the new information. In addition, a participant's explanation may be more understandable than the trainer's.

Organizing discussion groups can help participants get to know each other. This can establish an

BOX 10.1

Designing Relevant Training

The Ministry of the Environment and Natural Resources (MARENA) is responsible for protected area management in Nicaragua. GreenCOM provided training and technical assistance to MARENA in environmental education and communication.

A series of training workshops were developed to reflect the needs expressed by MARENA. These included developing inter-institutional working relationships and specific skills such as the abilities to give an effective talk or presentation, encourage community participation, and develop interpretive materials. The training program was based on the basic aspects of the participants' job responsibilities—being able to define key management issues in the protected areas, developing educational strategies and materials to address them, and educating local community adults and children about these issues. The training program used a combination of presentations, group exercises, participant presentations, group problem solving, and practical application of the new concepts and skills.

The training program was designed to include two week-long intensive training workshops, a guided practicum to apply new skills and work together in groups, technical assistance in the field, and follow-up with each group to encourage the continued application of these skills.

atmosphere of collegiality and trust. Such an achievement can result in increased support and a stronger professional network that operates long after the conclusion of the training program. In some circumstances, it may be necessary to conduct exercises specifically to build a level of communication that allows groups to function. Most trainers establish the tone for the day with an "icebreaker" that begins to achieve this goal. A room arrangement that enables participants to see and speak with each other comfortably can help establish the appropriate atmosphere for the program.

Engaging participants in discussions changes the dynamics of the program by changing the focus of attention from the leader to the participants. This allows people to be responsible for their own learning, empowering them with the significant idea that they, too, have important information and ideas to share. This technique can be an effective tool in building competency for tackling a new skill (see Box 10.2).

Practice

While some topics are best discussed, others are best practiced. As suggested by the education theo-

BOX 10.2

Building a Team

Teams do not always form naturally; they must be nurtured. During training workshops in Nicaragua, teamwork was encouraged in a variety of ways. Individuals were identified by team on their nametag, and teams sat together throughout the training. Introductions, presentations, and icebreaker activities were conducted with teams. This practice encouraged leadership within the teams, responsibility among individuals, equitable power-sharing, and participatory decision making.

Each team was made of participants representing different institutions and both genders; activities were conducted to emphasize the importance of listening to everyone, coordinating efforts, and recognizing individual skills and contributions. Many participants commented in their evaluation that they had not realized the importance of team efforts, and while it wasn't always easy, they preferred to continue to practice these strategies in their work.

BEST COPY AVAILABLE

0831010001 55

We all remember much better what we have discovered and said ourselves than what others have told us.

ries of inquiry and discovery learning, when people of any age have an opportunity to physically work with the information or practice a skill, and particularly when the activity is designed so that they discover or reinforce concepts, learning occurs and the training is successful. We all remember much better what we have discovered and said ourselves than what others have told us (Hope and Timmel, 1984).

It is common to ask teachers in teacher-training workshops to participate in activities designed for students. This technique increases the teachers' familiarity with the new materials; it also engages the group and gives it shared experience. If the teachers also critique the activity, discuss how they might use it in their classroom, or analyze different outcomes for the discussion, they are investing in their ownership of the new curriculum. The chance to think with other teachers is often the greatest gift a workshop could give participants (see Box 10.3).

Conducting activities is also an ideal way to practice skills. Instead of simulations or role-playing, where some key elements of the skill may be artificial, use the real world for skill building. Not only are participants discovering and reinforcing concepts, but also they are simulating their work experience in the company and support of professionals they know and trust, with the safety net of trainers. The perceptions of "this is too hard" or "I'll never be able to do this" begin to evaporate as the group works through the activity. Skills that require time, or that should be done at each participant's work site may be embedded in a "practicum" experience, around which two sessions of the training are placed. The second training session then becomes an ideal opportunity to report on successes, compare experiences, and evaluate how the new practice could work better (see Box 10.4).

The purpose of most professional development activities is to change behavior, creating a new norm for that group of professionals. All the barriers that exist for individual behavior change operate at the group level, too. To the extent that a training program can help participants overcome those barriers, it will be successful. Practicing the new behavior is one way to solidify the new information and supportive attitudes about the change. It also enhances confidence and competence. With support and follow-up activities, participants may be well on their way to a new behavior.

Study tours are another way to physically engage participants while exposing them to new ideas and strategies. A great deal of information can be exchanged when participants actually visit and experience a new site. Prior to planning a new interpretive center at Silliman University, for example, GreenCOM conducted a study tour for four faculty members, allowing them to visit a variety of marine aquaria, nature centers, museums, and zoological parks that offer similar types of collections

BOX 10.3

Training Activities

Workshop participants in Nicaragua applied the skills they learned in the training to their work sites, working together to develop environmental communication strategies. Some teams designed a survey, conducted observations, collected data, and interpreted those data at their sites to provide more insight into the management of their protected area. These studies helped participants focus on how local residents interact with the protected area and how their beliefs affect their actions. Participants collected valuable information about the residents' beliefs about water quality or collecting firewood, which added greatly to the development of interpretive messages.

Another practical exercise from the training workshop was drafting an interpretive plan for each protected area that encouraged individual as well as institutional collaboration. The development of these plans and the interpretive materials are monitored and supported by GreenCOM in such a way that the participants' important efforts are recognized.

80

BOX 10.4

Guided Practicum

Even though a team works together during the workshop, will they continue to do so on their own? Will they actually apply and practice the skills they learned in the workshop? Will they successfully navigate around obstacles? A guided practicum period between workshop sessions helps provide a structure to assure positive answers to these questions.

During the first training workshop in Nicaragua, each team was given an assignment to be carried out in their protected area with their new skills. Some time was allotted to discuss the assignment and create an action plan. The assignment was designed to engage each team in practicing the skills of program planning and including other stakeholders in the design of the program. GreenCOM staff visited each team during the practicum to provide technical assistance and motivation.

Evaluations indicate that participants appreciated the structure and assurance provided by the assignment, the visits, and the follow-up presentation they made in the second training workshop. The assignments turned out to be much more difficult than participants expected, necessitating a considerable time period between workshops for problems to be resolved. The value of the experience was much greater than a simple homework assignment: it reinforced many of the principles from the training and continued to build team relationships and responsibility.

and programs to their proposed facility. The experience engaged them in thinking broadly about the possibilities for the physical facility, the program, the operation, and the long-term funding. The "road trip" helped strengthen friendships and give them a common experience as well (see Box 10.5).

Offer Choices

Although it is helpful to conduct a thorough needs assessment of participants prior to a training program, it is difficult meet everyone's needs. By offering concurrent sessions, independent workstations, and choices in the program, two things happen: The participant is empowered to determine his/her own course of action, and the likelihood that something will appeal to everyone is increased.

If the program cannot accommodate concurrent sessions, it may be possible to offer the group a series of simple choices. For example, the time of the first break, the location of the bus pick-up, and the order of the group reports, are decisions that do not affect the program, but give participants a role in shaping the training to meet their needs (see Box 10.6).

Record Reactions, Seek Suggestions for Improvements, and Measure Outcomes

Evaluation is an important component of every GreenCOM activity. Through evaluation program managers begin to understand what worked and why. This information allows them to replicate their activity successfully, and share tips with others. Training programs offer three distinctly different evaluation opportunities.

Recording Reactions

During a training program and at its conclusion, participants should provide their reactions to the trainers. These three questions should be relatively easy to answer and quite helpful to program organizers:

1. What worked well; what did you like about the training?
2. What has not been helpful; what should be changed?

BEST COPY AVAILABLE

A training program is only as good as the results.

BOX 10.5

Study Tour Provides New Ideas and Experiences

A select group of Nicaraguan interpreters traveled to the University of Idaho to tour protected areas (i.e., national parks, city parks, private parks, and indigenous reserves) in the northwest U.S. and experience the various types of interpretation in these facilities. This study tour stimulated new ideas, techniques, programs, and materials that may be adapted to Nicaragua. It also helped develop a cohesive network of communication professionals among the group members.

On the trip back, the group visited El Salvador and met Salvadoran professionals who shared a similar study tour experience. The two groups toured protected areas that have developed interpretive strategies adapted from several North American ideas. This study tour and exchange was an important link to building regional expertise in environmental communication.

3. What suggestions do you have for the next training program; what changes should be made?

These questions can be used at the mid-point in the training to enable trainers to make corrections and modify the program as necessary. At the conclusion of the program, participants may take the time to carefully reflect on the advantages and disadvantages of each section of the workshop, and offer their unique perspective. Other questions may be added about the elements that most concern the trainers (e.g., feedback on the trainer's style or clarity, usefulness of materials, or room comfort.)

Seeking Guidance

In keeping with the philosophy of empowering professionals, trainers should also simply seek guidance, suggestions, and helpful advice from participants about redesigning the program to best suit their needs. When cultural norms prevent critically thinking about changing a program (either positive or negative), try to design an activity to collect the information. Asking small groups to design the next training program, and providing sessions or questions about the program, could generate a product that translates participants feelings about the program into a new agenda.

Measuring Outcomes

Finally, a training program is only as good as the results. It is important to measure and document the changes in participant's work performance that may be due to the training program. The original training program objectives should be helpful in isolating specific indicators of success that can be measured three to six months after the program (see Box 10.6).

Consider Supervisors, Reward Structures, and Strategies for Ongoing Support

The best training program may generate excited participants, but without a supportive structure when they return to their jobs, it may be impossible to sustain new skills and behaviors. Training programs must carefully consider how individuals will be able to perform differently. Should supervisors be trained along with employees? Should a critical mass of individuals from the same institution participate? What reward and incentive structure exists and can it be altered to reflect the new program?

If the existing structure is well-entrenched, a training program that puts participants at risk should be avoided. Primary teachers in Zimbabwe, for example, found enormous external barriers to teaching problem solving skills instead of the standard curriculum. Parents, administrators, and even students preferred the traditional textbook curriculum which assured a secondary education for successful youth. In such cases, a campaign aimed at parents and education ministers to consider educational reform might be possible. Until then few

BEST COPY AVAILABLE

BOX 10.6

Evaluating Workshops

In Nicaragua, GreenCOM used a series of evaluation methods to determine what participants learned and how they applied their new skills. Clear objectives for each session help measure the degree to which participants met these expectations.

Participants completed evaluation forms after each workshop, commenting on the most useful sessions, most practical skills, what they learned, and how they expected to change their work as a result of the training. Logistical and technical details of the workshop were also evaluated on a quantitative scale to rate the quality of technical presentations, practical exercises, food, and lodging during the week.

Evaluation of the guided practicums allowed for self-evaluation as well as of the team. Each participant was asked to rate the difficulty of key tasks during the practicum and then reflect on why s/he thought it was difficult or easy, and the result of their personal and team efforts. In addition, pre- and post-tests allowed GreenCOM to measure specific knowledge gained and the ability to apply this knowledge. These data can be desegregated by team, gender, or institutional affiliation.

teachers will be able to overcome the forces resisting change and may even endanger their job status by pushing for it.

Ministerial approval, administrative support, release time from work, projects relevant to the job site, and funding for supplies and resources are certainly components of a supportive system that can be used to remind participants that their new skills will be rewarded. Training programs that can do more, however, are more likely to be successful. In El Salvador, for example, a training program for journalists was followed by a national award for the top environmental reporter (see Chapter 13). Such a technique insured participation from the trainees and support from the media outlets. In Tanzania, an ongoing system of training programs offered an opportunity for the same people to reconvene several times over a year to exchange successes and concerns, using each other as a support network. Since many international development programs finish up and close down, they should try to leave behind a skilled base of program participants to carry on the changes (see Box 10.7).

BOX 10.7

El Salvador's National Teacher In-Service Program

El Salvador's Ministry of Education knew it would take years for the new elementary curriculum to filter through the rural regions and be practiced by current teachers. To increase the likelihood of teachers using the new materials, it selected Master Schools throughout the nation to serve as a hub for 10-20 nearby schools. Ministry officials trained the Master Teachers at a regional in-service, and these teachers returned to their school s to train local teachers. Because the cycle was repeated over several years, master teachers became accustomed to their new role as trainers, and other teachers looked to the Master Schools as local innovators.

SUMMARY

A variety of resources have been developed to help educators, communicators, environmentalists, and others design and conduct training programs. UNESCO's International Environmental Education Programme publishes several manuals for educators, and other international agencies produce guides and technical documents.

A good training program is a targeted professional development experience for the participants.

It builds a climate of trust and encouragement through engaging activities and discussions. It allows participants to explore new concepts and practice skills relevant to their work. It allows participants to make choices about the structure of the program or which skills they will practice. It establishes a supportive network of colleagues who can provide assistance after the training program has concluded and seeks ways to obtain administrative support as well. It is evaluated.

Professional development activities such as training are practical and results-oriented. They fail when they are extremely long-term, when they are not job-related, when they are not specific in their outcomes, when they are not evaluated, or when they do not take into account strong workplace forces to maintain the status quo.

References

Braus, J. and M. Monroe. (1994.) "Designing Effective Workshops," *Workshop Resource Manual*. Ann Arbor, MI: NCEET, The University of Michigan.

Hope, A. and S. Timmel. (1984.) *Training for Transformation: A Handbook for Community Workers, Book 2*. Gweru, Zimbabwe: Mambo Press.

Miller, V.A. (1987). "The History of Training," *Training and Development Handbook: A Guide to Human Resource Development, Third Edition*. Craig, Robert L. (Ed.) New York: McGraw-Hill.

Chapter 11

Media Campaigns

Brian A. Day

The media, that collection of opportunities for communicating with the masses, carries tremendous power. In the United States, we have seen television episodes plant seeds of change in a nation's conscience when Maude (a popular character on a prime time show in the 1970s by that name) chose to have an abortion or when Fonzie, a street-smart teenager, got a library card. The American public began to debate the merits of legal abortions and nearly one half million youths rushed to public libraries to get their cards.

We have also seen televised political debates sway public opinion after leading contenders falter. And we have seen powerful advertisements sell cars, toothpaste, and peanut butter. It is no wonder that environmental communicators seek to harness this powerful force aimed at informing and changing public opinion.

But often this power is quite difficult to use effectively. In some cultures, people are bombarded with over 3,000 advertising messages per day. What would make an environmental message stand out among that competition? Furthermore, environmental behavior is often a series of complex actions and opportunities. Is it realistic to expect a short message to make a significant change? Publicly broadcast communications reach the masses, but since the public usually holds a wide variety of beliefs and knowledge about any one environmental topic, it is difficult to reach the right group with relevant information. How can a message be crafted to communicate the right points to the proper audience?

This chapter will explore designing communications campaigns.

WHAT IS A COMMUNICATIONS CAMPAIGN?

Communications campaigns are varied, multifaceted, highly planned, and strategically assembled media symphonies designed to increase awareness, inform, or change behavior in target audiences. There are many forms of public media:

Paid and Public Service Advertisements

For instance, GreenCOM developed a series of six 30-second television and five radio spots on water conservation for Egyptian farmers. The spots were launched with a well-attended news conference where Ministry of Public Works and Water Resources staff expressed their pleasure with the campaign. At the same time, field engineers in the Ministry were given packets of information to support their discussions with farmers, and a press kit was distributed to reporters. Hats, posters, and a calendar for school children helped create a festive atmosphere that kept the serious subject of water conservation alive.

Making News

Many environmental organizations make effective use of "media events" to encourage news reporters to cover their stories. Greenpeace, for example, has climbed smokestacks to hang signs that draw attention to air pollution. Tired of bureaucratic delays, another group wrapped the Toronto City Hall with red tape and had reporters on hand when the first employees came to work. Less confrontational events might include a press conference, a special lecture, a government hearing, the first showing of an important documentary, or a major announcement of a scientific finding. By themselves, these events can begin to increase awareness. Launched in conjunction with brochures, programs, and other activities, they can be part of a campaign.

Entertainment and Celebrities

The entertainment industry offers highly effective opportunities. GreenCOM worked with a local television producer in the Philippines to adapt a series of daytime drama episodes where popular characters discussed issues. Many advocacy groups, from animal rights to ocean protection, use prominent actors as spokespersons for their causes in newspaper articles, paid advertising, entertainment, and public service announcements. Actress Meryl Streep's concern about pesticides on apples was orchestrated by the Natural Resources Defense Council in a campaign called "Mothers and Others" that focused attention on pesticide residues on food and the inane but widely shown "Naked Gun 33 1/3," a movie about government policies for alternative energy sources, was created with support from well-respected environmental policy groups.

A communications campaign may involve a variety of these strategies, or only one. The design of a campaign depends upon the financial resources available to create, field test, and implement the campaign, the goal of the campaign, and to a certain extent, the existing awareness and controversy associated with the issue. Some of the many possibilities for communication channels are listed in Table 11.1).

DEVELOPING A CAMPAIGN

When a decision has been made to use a media campaign to advance an environmental cause, it may seem natural for those closest to the situation to define the main message of the campaign. "One less car," or "Don't litter" may come to mind. This is a temptation that must be overcome. Premature efforts to identify the message may lead to missing the needs of the audience. Experts on the issue often know little about the audience. It is crucial to know the audience—to know what they already know about the issue, what they associate it with, how they feel about it—in order to design an effective message. In Egypt for example, officials of the Ministry of Public Works and Water Resource told GreenCOM that they know what messages would get farmers to conserve water. But in a pretest of only 40 people, 39 did not even understand the ministry's message—let alone find it persuasive.

As with an educational effort or a training program (Chapter 10), the development of a communications campaign should follow a basic process that involves carefully developing a realistic goal, assessing the audience, developing a strategy that uses appropriate media, and, finally, crafting a message that pre-tests successfully with the audience (Chapters 6–8). All of these elements: the goal, the audience, the media, the strategy, and the message, interact with each other to create a successful campaign.

After the campaign is launched, it can be evaluated in several ways: by recording the exposure (number of ads in number of magazines with a circulation of so many people); by surveying people asking them to recall the message; and by observing changes in behavior or the environment that could be attributed, in part, to the campaign (see Chapter 9).

Table 11.1 Sample Communication Channels

- Media events
- Editorials
- Advertisements
- Flyers and brochures
- Public service announcements
- Media releases
- TV shows
- Posters, signs, and banners
- Comic Books
- Manuals
- Interview shows
- Topical theater
- Radio soap operas
- Pencils
- Hats

083101001158

To select the most effective behaviors, it is necessary to explore what people already know, believe, and care about.

Think of a communications campaign as having four stages (see Box 11.1). In the first stage formative research helps define the goals and the target audiences, as well as the "media diets" of the audiences. In the second stage, the audiences' the campaign strategy is developed, messages are developed and pre-tested. Third, the campaign is implemented. Finally, the results are evaluated and used to further refine the strategy.

Stage 1: Goal, Audience and Medium

In the first stage, formative research helps define which behaviors the campaign will attempt to change to achieve its broad goals. To select the most effective behaviors it is necessary to explore what people already know, believe, and care about (see Chapter 6). You must understand the difference between those who already perform the desired behavior ("doers") and those who do not ("non-doers"). Finally, formative research for a communications campaign should explore the media "diet" of our audience. Are they literate? Do they listen to radio? If so, which station(s) and at what time(s)? Do they read any publications regularly? Do they have access to TV, Internet, or other media and do they use it regularly? This information, along with your budget, will help define the strategy and choice of media.

With the goal in mind and information about the "media diet" of the audience in hand, strategic decisions can be made about selecting markets, media, sequence, frequency, and times. These factors form the essence of the campaign. Critical information about funding and how to obtain access to a variety of media opportunities will be needed at this time. Is the effort blessed with a charismatic spokesperson? Is free radio time available? How many newspapers cover the target region and is it possible to advertise in them? Does the audience travel along a particular route frequently, making road signs an option? How often should the message be repeated to achieve your goal? Is it necessary for the campaign to generate more resources to enable you to achieve the goal?

BOX 11.1

Formative Research Changes Campaign Focus

In GreenCOM's work in Egypt, the Ministry expected us to create a campaign that discussed how farmers could save water. Initial research made clear, however, that some farmers already used conservation techniques, and that others did not believe water needed to be conserved. A carefully crafted initial campaign began by explaining the treaty that limits the amount of water that is available and continued by acknowledging the fine efforts that some farmers employ. A later campaign was more specific and directed toward additional conservation strategies. In this case, formative research indicated that people would not respond well to being told what to do, but first needed to hear support for the positive behaviors already in place.

Stage 2: Message

Finally, the main message of the campaign can be crafted, along with the design of all the media products—comic books, posters, story booklets, radio spots, billboards, etc. A team of creative people should work with the content experts and rely upon the results of the formative research for guidance. The process often requires several revisions before everyone on the team is pleased with the type of illustrations, the flow of the storyline, the wording, the gender implications of the message, and the ultimate action.

The experts are, of course, not the audience, so every element of the campaign should be pretested with the intended audience. This can be done through focus groups, interviews, classrooms, meetings, and other existing networks. But pretesting must be done. There are many examples of media products that were distributed broadly before the organizers realized they were not com-

BEST COPY AVAILABLE

municating the desired message. For example, Chevrolet neglected to pre-test the name of its compact car in Latin America, only to learn after public embarrassment that Nova, or "no va" means "no go" in Spanish. Translation errors are frequent, even for major advertising firms. Make sure local people, not just experts, are in the pre-test audience. Pre-testing is one of the most important ways to prevent spending money and effort in the wrong direction.

Stage 3: Implementing the Campaign

Implementing a campaign is never easy, but if stages one and two have been done well, implementation should go smoothly.

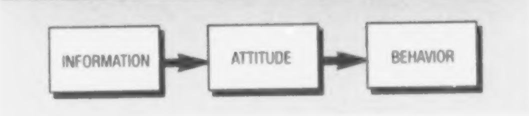
Stage 4: Monitoring and Evaluation

Evaluation should begin during implementation and be used to make mid-course corrections (see Chapter 9).

THEORETICAL MODELS UNDERLYING CAMPAIGN STRATEGIES

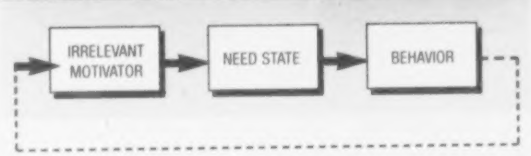
For centuries, educators have assumed that if they provide students with information, that information will lead to new attitudes. They have also assumed that these new attitudes will then lead to new behavior (see Figure 11.1). However, 20th century research shows, what many parents already knew—that the linkages between information and attitudes and, even more importantly, between attitudes and behavior are not strong. This age-old educator's model is not really very effective at changing behaviors. The biggest gap in human nature is between what we know and what we do!

Figure 11.1 Educator's Model



When the advertising industry was born in the early 1900s, if found the educator's model useless in selling products, especially in getting consumers to select their product over similar products. They created a different, effective model that spawned a multi-billion dollar industry (see Figure 11.2).

Figure 11.2 Advertiser's Model



The advertiser's model clearly works. However it contains an element that can be unappealing to environmental communicators. Ads usually start with an "attention grabber" that we may think of as an "irrelevant motivator." (The advertising industry does not use this term.) An irrelevant motivator is something that motivates the consumer to buy the product, but it is not related to the product. This motivator is connected to a "need state" of the potential customer. Some universal human need states are for status, sexual attractiveness, or being a good parent. The advertiser suggests that buying this product (changing your behavior) will fill this need. The examples below demonstrate this model:

- Automobile manufacturers try to connect the purchase of a specific automobile with status, power, or attractiveness to members of the opposite sex.
- Toothpaste manufacturers and breath mint makers suggest that the person of our dreams will suddenly show interest in us if we use their product.
- Cigarette producers try to convince us that their brand will make us "cool," manly, and worldly.

As powerful as these appeals to human needs states are, a single exposure to an advertisement rarely has much impact on the consumer. Even after they buy the product, consumers may begin to question the link between the product and the need

Why not just provide the information in the first place? Because the audience wasn't interested in it then. Now they are.

state—since in reality of course, there is no link. The new car did not make us rich and powerful. Brushing with Crest or Pepsodent did not get us a date. Lifesavers or Certs did not save our social life. Social researchers call this state "cognitive dissonance." The consumer is performing a behavior (*buying Crest*) for a reason that he/she intellectually knows to be untrue (*It will help me get a date*). This is an uncomfortable state that most humans will seek to resolve so that their actions are in line with their beliefs and knowledge.

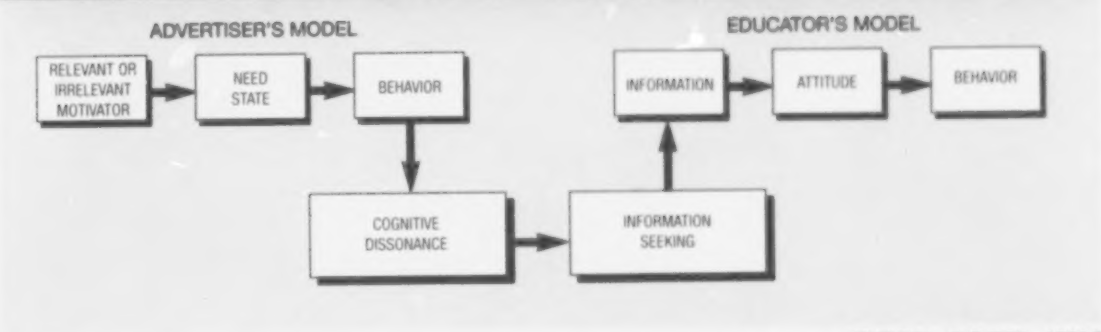
One way to resolve the situation is to keep listening to the original message for reassurance that you are doing the right thing. Thus advertisers typically repeat their message endlessly not only to attract new customers, but also to reassure current customers. This repetition creates a direct relationship in our minds between the product and the fulfillment of our needs. In fact most advertising is aimed at customers who have already made the decision to buy the product and is intended to reinforce that decision.

An Environmental Communications Model

Dr. Peter Sandman, a noted environmental communicator, developed a third model in the 1970s that combines the educational and advertising models (see Figure 11.3). Sandman's model follows the advertiser's model except that almost all environmental messages can use a relevant motivator that addresses a need state to get people to perform an initial small behavior. Performing this behavior still induces some cognitive dissonance, as it does in the advertising model. For example, those of us who have circulated petitions know that it is better to ask people to sign quickly and *then* listen to the good reasons for supporting the cause. Once someone signs his or her name to a statement, he/she starts to question "Should I have done this? How will my name be used? Who is really behind this? Did I read it carefully enough?" Another example: children often nag their parents into doing something—such as recycling—that they learned about at school. At first the parent responds to please the child, but later will ask "Why am I really doing this? Is it really worthwhile?"

Here the Sandman model departs from the advertiser's model. Environmental communicators have something that most advertisers don't—*good* reasons to continue the behavior that can replace the initial irrelevant reasons. Rather than endlessly repeating the motivational message, environmental communicators can now switch to the real reasons for the behavior by providing information. Why not just provide the information in the first place? Because the audience wasn't interested in it then. Now they are. They are interested in finding information that will support their new behavior. In fact, they are seeking it in order to resolve the

Figure 11.3 Sandman's Model



BEST COPY AVAILABLE

uncomfortable cognitive dissonance they feel at performing a behavior for a not-very-good reason.

Sandman cites research done at the Ann Arbor, Michigan recycling station (in the days before curbside recycling) to explain how this works. Recyclers had to separate their trash and then drop the recyclables off at a recycling station in town—a considerable investment of time. At the station, Recyclers were interviewed about what made them come and how much they knew about recycling. New Recyclers didn't know much and were there for basically irrelevant reasons (e.g., their child nagged them to do it, they wanted neighbors to think well of them in this progressive community, they wanted to meet people like themselves). Long-term Recyclers however, could tell interviewers how many trees were saved by a month's worth of newspapers and how much energy was conserved by recycling glass bottles. They had replaced the irrelevant motivators with relevant reasons to continue the behavior. The Recyclers who did not make this transition to finding good reasons, stopped recycling. The original motivator was not enough to sustain the behavior of recycling. Thus information, delivered at the correct time and in a targeted manner, is crucial to maintaining environmentally friendly behaviors. The best place for Recyclers to get this information would be at the recycling station itself.

This research suggests that creating and maintaining recycling behavior requires two messages to two audiences. The first message contains an irrelevant motivator (or partially relevant) and is aimed at the Ann Arbor population. It might be something like "You meet the nicest people at the Ann Arbor Recycling Station" or show a child reminding a parent, "But Mom, You could recycle that!" The goal of the message is to get people to the recycling station once.

The second message is designed to reinforce the behavior of people who have made the trip to the recycling station. It contains the reasons why they are doing a good thing and builds on the behavioral commitment.

A national recycling campaign in the United States used Sandman's model. First, it encouraged people to call a toll-free number. The initial advertisements ended with the tagline, "If you are not recycling, you are throwing it all away," and an image of a crumpled Earth tossed into a waste bin. The message appeals to Americans' positive attitudes toward the environment and their ethic about not wasting things. The 200,000 people who called received additional information about why recycling was important, where they could take recyclable materials, how to package them, and how to a start recycling program by finding local markets. The campaign didn't spend its own resources putting this detailed information out to people who weren't paying attention. The first ad got their attention (based on an emotional motivator) and convinced them to take a simple action. As a result of that action they were given factual information that would support a longer-term behavior change.

Positive attitudes support long-term behavior (see Figure 11.1). Information alone is not enough to support behavior, but information can lead to a change in attitude that can lead to behavior—just as educators have told us it would. But, without a motivator and an initial action to create cognitive dissonance and start the information seeking process, there is nothing to trigger the uptake of the information.

By combining the models of advertisers and educators, environmental communicators can have a bigger impact.

Chapter 12

Putting People into Policy

Raisa Scriabine and Brian A. Day

Good policies are the product of effective policy formulation, articulation, and implementation. As they are implemented policies should be monitored and readjusted to stay on target. Each component can be enhanced with a quality communication program that engages stakeholders, fosters partnerships, and mobilizes a common vision.

Policymakers throughout the world are coming to terms with a new agenda—one that pragmatically brings together concerns about environmental protection with those of economic growth. At issue is how to achieve environmentally sustainable development by meeting today's human needs without compromising the Earth's natural resource base upon which all life depends. But often policy makers focus on only the natural, political, and economic *systems* and leave out the primary actors—the people.

Environmentally sustainable development requires:

- A healthy political environment, characterized by environmentally aware leaders and greater popular participation in decision making
- Effective policies, laws, and regulations that empower citizens to make environmentally beneficial choices
- Capable institutions to implement policy, advocate reform, and educate both the people and their leaders

Ultimately, environmentally sustainable development is about more than sound policies, politics, and institutions: it is about people. People conserve resources or destroy them through their everyday actions. And people can serve as catalysts for the development of equitable and just policies.

Environmental education and communication (EE&C) can help bring people into the policy process in a meaningful and effective way. When people see the link between policies, their livelihoods, and their children's futures, they become stakeholders in the policy process. As stakeholders, people catalyze policy change. They can organize, advocate, educate, and elevate local issues and concerns to national policy fora. And they are more apt to see that policies are understood by others and enforced.

As the complexity of achieving environmentally sustainable development is increasingly appreciated, the involvement of multiple stakeholders becomes a factor. Increasingly broader groups of people need to become engaged. In addition to natural resource consumers and managers at the grassroots level, stakeholders may include specialists (e.g., economists, sociologists, business leaders, farmers, foresters, engineers, lawyers, educators, health professionals, communicators, and many others). Environmentally sustainable development also calls for building bridges between groups, such as industry and environmental organizations that sometimes find themselves in adversarial positions. And it calls for building cross-sectoral coalitions to integrate all sectors—donors, industry, grassroots groups, etc.—that affect social and economic development.

Policies are intended to promote specific actions or behaviors at international, national, regional, or local levels. For example:

- *Local*—a fisherman adopting sustainable harvesting practices
- *Institutional*—a corporation integrating environmental concerns in configuring its bottom line
- *National and global*—a set of policies that support sustainable development.

Most elected officials are extremely sensitive to public needs and desires, and communication can assist them to understand those needs.

SHAPING, EXPLAINING, AND IMPLEMENTING POLICY

Environmental education and communication strategies contribute to three, interrelated facets of the policy process: formulation, articulation, and implementation. EE&C helps shape policy, explain it, and make it work.

Formulation

Formulation of good policies hinges on getting input from the people about their needs and wants. Most elected officials are extremely sensitive to public needs and desires, and communication can assist them to understand those needs. Often, the officials can't hear public opinion unless it is well articulated and strategically presented. EE&C skills can enhance this presentation. When people—particularly poor and vulnerable groups—are involved in the policy process, more equitable and effective policies reflecting real needs are likely to result. Empowered as shapers of policy, people begin to exert their rightful role in holding their governments accountable for carrying out appropriate policies.

Sometimes affected groups of people—stakeholders—are invited to participate in the policy formulation process.

EE&C methods can help get the right information to the right people at the right time during this process. Research and communications skills are needed to gather, analyze, interpret and communicate to diverse audiences facts about problems and proposed policies. EE&C helps define *what* information is needed *by whom* and *in what form* to formulate appropriate policies. EE&C also provides both policy makers and advocates with the skills to define and articulate their agendas. This results in promoting constructive dialogue.

Articulation

Once made, a policy needs to be explained. In policy articulation, EE&C helps specific people understand how key issues affect them. It bridges the information gap between governments and their constituents, the national level and local communities, and producers and consumers. EE&C can ensure that policies are explained to all members of a community, and can establish feedback mechanisms to examine consequences for environmental, social, economic, and cultural impact.

Implementation

If EE&C contributes to policy formulation and articulation in the ways described, implementation may progress more smoothly. People will more readily understand their stake in both the broad policies and the consequent laws and regulations. Ideally, stakeholder support will also contribute to an adequate allocation of resources for policy implementation, key to moving policy from words to action.

To implement policies more effectively, EE&C builds the capacity of national and local institutions to educate, inform, and communicate. Education and communication by governments, interest groups, political parties, and others, helps legitimize and activate policies.

Finally, it should be noted that policy development does not necessarily follow a linear pathway from formulation to articulation to implementation. Articulation, for example, may stimulate reexamination, and perhaps even reformulation of a policy. Similarly, implementation may identify glitches that can trigger reexamination. This circular process, which education and communication can help facilitate, in fact improves policy relevance and effectiveness.

EE&C AND STRATEGIC PLANNING

The strategic planning process adopted in many countries has resulted in National Conservation Strategies (NCSs), National Environmental Education Plans, Tropical Forestry Action Plans (TFAPs), and National Environmental Action Plans (NEAPs). This process provides an opportunity for national debate on environmental priorities and the formulation of related policy and action programs. Although most have yet to represent all stakeholders, these preparatory processes have attempted to involve a cross-section of society.

On paper, most plans recognize the importance of EE&C. For example, almost all NEAPs attest to the need to include education and public awareness in their environmental strategic objectives. In practice, however, these plans succeed only if the government can raise or allocate appropriate resources; if the plans receive high-level support; and if the people understand and are committed to the process. Therefore, effective communication is crucial. For example, when Madagascar first formulated its Environmental Action Plan, most support came from external advocacy groups. No internal constituency developed, partly because the benefits of sound natural resource management were not effectively communicated to the Malagasy people. Over time, a backlash resulted, setting back efforts to act on the nation's environmental agenda. On the other hand, when GreenCOM worked in Malawi and El Salvador on National Environmental Education Strategies, it began with broadly inclusive workshops that articulated the stakeholders needs in a policy. Both countries now have popular environmental education strategies.

FOSTERING POLICY DIALOGUE

EE&C facilitates policy dialogue between government and people, national and local levels, and among multiple stakeholders. For example, in the Philippines where national policy encourages greater sharing of power by communities and public agencies in forest management, field offices of the environmental ministry may not know how to make this policy work locally. EE&C can provide the needed training and materials. With the trend toward increasing decentralization and greater autonomy for regions and provinces, EE&C can help local governments, NGOs, and citizens work together.

In addition to fostering dialogue between people and their government, EE&C strengthens connections among other groups. For example, it can provide the tools to bring multiple stakeholders like corporations and environmental groups together by identifying common ground and facilitating productive dialogue. Some corporations, for example, have instituted environmental changes in their policies as a result of listening to their customers, their employees, and/or the people who live near their facilities. Others have set up citizen advisory groups to help shape workable environmental reforms in corporate practice.

PUBLIC AWARENESS

Public awareness programs may be targeted to specific, local audiences, such as taxi drivers, to maintain their vehicles, thus reducing air pollution. Conversely, public awareness campaigns are typically conducted on a national, or even international, scale. For example, the World Wide Fund for Nature (WWF) mounted international campaigns to protect tropical rainforests and wetlands through coordinated national action of its member countries worldwide. These and other campaigns use mass media; advertising; special events; exhibitions; conferences, seminars and workshops; school-based programs; merchandising; and other activities. The Gambia's National Environmental Awards Scheme, developed by GreenCOM, is a good example of a public awareness program that engages people from a variety of walks of life (see Chapter 14).

PUBLIC PARTICIPATION

Communication can also play an important role in linking the public to policymakers to establish direct lines of communication. New communication tools, as well as new ways of using those tools, have made these links easier to forge. Community groups have become more sophisticated about use of, and access to, communication media. Simplified technologies, such as the portability of video and editing equipment, desktop publishing, Internet communication and a host of others, have equipped regular citizens with new ways of influencing policy undreamed of even ten years ago.

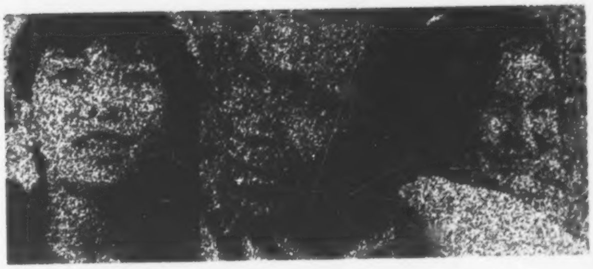
Political upheavals, such as the overthrow of the Shah in Iran and the collapse of the Soviet Union, owe much to the tools their proponents were using, such as fax and the Internet. Advocacy, one of the recent strategies to emerge from the new role of civic participation, puts promotion of environmental issues into the hands of civic groups. To support the democracy and governance initiatives of USAID and other donors, communication plays a vital capacity-building role in the training and mobilization of advocacy groups.

BROADENING PUBLIC PARTICIPATION

Participation of multiple stakeholders at an early stage increases the likelihood of policy or program success. Actively involving stakeholders from various levels, sectors, and disciplines develops consensus among diverse and sometimes disparate interests. Bringing other key groups into development of environmentally beneficial policies also contributes to a stronger process. Engaging business, religious and academic organizations, the media, and other sectors of society broadens the constituency for environmentally sustainable development, leverages additional resources, and amplifies the popular voice for appropriate policy formulation and enactment.

In addition, as communities assume greater responsibility in managing their natural resources, members are encouraged to monitor, examine, and regulate the policies that they helped generate.

Section 4



Putting It All Together

Chapter 13

El Salvador's National Environmental Education Strategy

José Ignacio Mata

When GreenCOM was invited to El Salvador in 1994, the country had no environmental education in the schools, virtually no environmental information in the media, and no government agency charged with the environment. The situation was urgent in this small, war-torn country with a heavily damaged environment and a rapidly expanding population.

In what became one of the most comprehensive and ambitious programs, GreenCOM was brought in to promote environmental awareness and management throughout the nation. We undertook a five-year, multi-million dollar campaign, at the end of which, El Salvador possessed:

- A national environmental education (EE) strategy
- EE as a major theme of K–12 schooling
- Environmental studies at the university level
- An active environmental press.

In just a few years, environmental education became a transformational force in the schools, politics, media, and lives of El Salvador. How we helped the citizens of El Salvador achieve this so quickly is the subject of this chapter.

First, some thoughts on our general approach. Prior to the GreenCOM El Salvador project, a number of environmental NGOs were working in the country. But their efforts were mostly ineffective since they took one of two tacks, both of which failed in the El Salvadoran context. One tack was to protest harmful policies and development, but since the protesting groups lacked any real clout, they were largely ignored. The second approach was preservationist—these groups tried to keep natural areas intact and limit development. But since El Salvador is a small, overpopulated country, pitting preservation against development is futile. The power elite dismissed these environmentalists as out-of-touch hippies. In the middle—between preservationists and developers—lay public opinion. Since the public was basically uninformed, people chose sides based on emotion.

GreenCOM decided to take a third approach: one of proposing solutions. In fact, I see environmental education as a matter of offering solutions. This was harder than fighting or protesting, but ultimately it worked.

For instance, we proposed linking development with environmental improvement. Let's say you need to build houses and you also need to let the aquifers recharge. How can you put together a housing plan that also allows for the recharge of local aquifers? Asking ourselves and the residents to think through such challenges proved to be the most useful way we could proceed.

In 1994, GreenCOM and the Executive Secretariat of the Environment (SEMA) formulated a national environmental education strategy. We knew it would need to be:

- **Comprehensive,** covering all educational fields and communication channels in the country
- **Integrated,** so that educational and media efforts would be coordinated to produce synergy, and
- **Participatory,** involving people from all walks of life in both planning and implementation.

Our strategy focused on three fundamental areas:

- **Formal education**—the school and university system. Activities here have included curriculum development, teacher training, develop-

In just a few years, environmental education became a transformational force in the schools, politics, media, and lives of El Salvador.

ment of student materials, and developing university degree programs.

- **Nonformal education**—non-degree educational forums. Activities include working with literacy and adult education, agriculture and extension programs, park interpreters, museum exhibits, churches, professional organizations and unions, and other associations.
- **Informal education**—the mass media.

Clearly, working in these three areas at once produces synergistic effects as individuals receive environmental messages through more than one "channel."

FORMAL EDUCATION

Rarely does the opportunity arise to build a national environmental education system from the ground up. But because of El Salvador's pressing needs, the country was already committed to fundamental educational reform when GreenCOM arrived on the scene. We took this opportunity to infuse environmental education throughout the curriculum. GreenCOM used a three-pronged strategy:

- Making the environment, along with science and health, one of eight central themes for education
- Preparing EE materials to teach major environmental issues through standard subjects like Spanish and math
- Training teachers: the project trained some 5,000 teachers, including a corps of Ministry of Education trainers, and the training will continue.

In cooperation with the Ministry of Education, GreenCOM developed three environmental education guides—one each for grades K–2, 3–5, and 6–8. These guides include dozens of lessons and explain how to incorporate the lessons into the standard subjects.

Rather than being transposed from another setting, the guides are a completely new curriculum specific to El Salvador. An outside consultant assisted with the first two; the third was developed with in-country expertise. The Ministry of Education paid for printing. The first printing of each guide was 83,000; nearly every teacher in the country now has a copy.

Institutionalizing the Reforms

It is not easy to modify a formal education curriculum. Ministries of Education are often large, well financed, bureaucratic, and slow to make decisions. However, a national education reform movement, common in many countries in the late 1990s, shakes up the status quo and can provide an opportunity for introduction of environmental themes. Without an overall curriculum revision, bringing environmental education into the curriculum can be a slow and difficult process that should begin with the most closely related subjects, such as the natural sciences and health. After teachers in these subject areas accept EE, teachers of other subjects may be trained about its importance.

In El Salvador, to assure that environmental themes are adequately considered in the national formal education system, a unit responsible for environmental education was established in the Ministry of Education. The unit was an interdisciplinary group comprised of scientists and specialists in education and curriculum design. This unit had direct contact with the Ministry of the Environment.

GreenCOM worked with the Ministry of Education to create and train an environmental education unit within the Office of Curriculum Design. The Ministry selected the specialists for the unit: two biologists, both specializing in education and curriculum development, and short-term national and international consultants for executing specific projects such as the production of teacher's guides and teacher training activities.

Introducing Environmental Themes into the Curricula

Two considerations are crucial in introducing Environmental Education into a school curriculum: it must be integrated throughout the curriculum and it must focus on problem-solving.

...students who are perfectly capable of recognizing flora and fauna, but do not see beyond their enumeration, will not be motivated to act.

We followed two guidelines in introducing environmental themes to schools. First these themes must be integrated throughout the curricula, not added as a separate course. Second, good environmental education goes beyond learning facts about nature to understanding how to solve practical environmental problems.

Integrating Throughout the Curriculum

Environment can, and should be, associated with all subjects of the curriculum. For example, a physical education class can explore air quality and the effects of environmental contamination on the performance of the athletes; a geometry class can study the angles of a slope that is subject to severe soil erosion resulting from intensive agriculture. By this means, we acknowledge that environment subject matter is not limited to a few pages or lessons in a book but that it integrates all school learning.

Have a Practical and Problem-solving Focus

Specialists in the area of formal education may think that environmental education is limited to the study of ecology or to a factual understanding of nature. It is necessary to convince them that students who are perfectly capable of recognizing flora and fauna, but do not see beyond their enumeration, will not be motivated to act. If environmental knowledge is developed without creating positive values about the importance of wise conservation, this knowledge could be used to exploit nature even further. On the other hand, if students develop only an emotional sentimentality towards nature without a practical focus on its rational and sustainable management, this sentimentality could be applied merely to a preservationist position without thinking through practical solutions.

Teacher Training

The Ministry produced a series of beautiful color textbooks for "Science, Health, and Environment" but this led to two challenges. First, teachers could not use the texts effectively since they were not aware of environmental issues nor trained to teach with interactive projects. Second, adding "environment" to science and health reduced its potential to be an integrative force in the schools.

GreenCOM worked with the Ministry to develop a series of three teacher guides that provide concrete teaching activities, background information, and involve all teachers in environmental exercises. A training program was designed to accompany the distribution of the guides.

Teacher training should begin with basic information about the environmental situation of the world in general and their nation in particular as well as the consequences of environmental problems on the economy, personal health, and quality of life. Teachers should be trained to analyze different environmental situations, applying the knowledge offered by different disciplines, searching for alternative solutions, whether political, legal, technological, or related to changes in personal behavior. Training should promote developing these analytical, problem-solving skills in the students. This training should be supported with manuals for the teachers, applicable to appropriate grade levels, which give examples of how to relate subject content to environmental issues.

Production of Educational Materials for Classroom Use

Important teaching aids include booklets, videos, audio cassettes, illustrations, murals, games, models, etc. Teacher training includes developing abilities to use these resources and prepare similar materials.

GreenCOM produced several sets of educational materials to be used in schools:

- A radio series "Drop by Drop: The Adventures of Clarita the Water Droplet in her Trip Around the World," offered, in ten 10-minute radio programs, information related to water and the water cycle. This information was conveyed in the form of the adventures of a water droplet that falls to earth as rain and travels the country through rivers until reaching the ocean.

...students can be involved in planning measures for solving specific environmental problems...

- Two video series with a total of 11 programs approximately 12 minutes each addressed environmental themes for different educational levels. The 5 programs from "Our Home, the Environment" explained about water, soils, forests, biodiversity, and urban environmental problems for secondary students. The 6 programs in the series, "The House of Water" address themes related to water for primary students.
- A series of booklets for schoolchildren. Each booklet was created in collaboration with an NGO, with the goal of reinforcing the capacity of these organizations in environmental education. Booklets were about birds, sea turtles, forests, air and water. To develop the booklets, a local consultant contracted by GreenCOM and the specialists from the NGO prepared the contents of the booklet. Subsequently, the GreenCOM team reviewed the contents and adapted them to the educational level of school children to which they are directed (6th to 9th grades). Later, the concept and presentation of the contents was developed with an illustrator, who created explanatory games, jokes, and pictures that made the lesson fun and simple. Thus, the booklets became something very different from textbooks but they complement their contents. Of the 10,000 copies of each booklet printed, 3,000 were submitted to the Ministry of Education to be sent to schools as part of didactic packages, another 3,000 were turned over to the NGO that participated in the development, 2,000 were given to the Executive Secretariat of the Environment to be distributed to NGOs and students that request them, and 1,000 were distributed directly by GreenCOM.

School Environmental Projects

Through community projects, students can apply knowledge acquired in the classroom as well as develop values and skills for improving environmental conditions. Projects can be part of the social service activities required for graduation or can be conducted by a classroom working with their community.

Projects can focus on the development of positive individual environmental behaviors among students, such as planting trees in green spaces in downtown areas, separating and appropriately disposing of waste, conserving water and electric energy, maintaining nurseries and orchards, and making organic products for agriculture or horticulture. Projects can also focus on environmental assessments of the community: students can be involved in planning measures for solving specific environmental problems, such as solid waste disposal, pollution of river beds, deforestation of certain areas, or the erosion of agricultural soils in the community; or the execution of environmental education and promotion actions in support of solving identified environmental problems.

Environmental Education in Universities

Introducing environmental education into universities follows the same rules recommended for the other levels of education, including training of professors, a greening of courses where instructors express interest, and instituting a mandatory course on national environmental problems.

In El Salvador, several universities have undertaken this challenge. Each university planned an initial seminar on the environmental issues of El Salvador for all faculty that approaches environmental issues from geographic, geologic, historical, economic, social, political, and cultural perspectives. According to the interest expressed, the university can choose the next step from several alternatives. One option is to create seminars in various departments as electives. Another option is to design seminars about specific environmental topics for relevant degree programs: for example, a seminar on water quality for biology and chemical engineering departments, or on population dynamics and environment degradation for the sociology and economics departments. A third option is to establish a seminar in environmental issues as a mandatory course for all students. Finally, some universities have begun to design environmental degree programs, such as the Universidad Centroamericana José Simeon Canas (UCA) which will soon offer a Masters degree in environment and natural resources.

NONFORMAL ENVIRONMENTAL EDUCATION

Our objective in El Salvador was to enable technicians from public and private institutions to provide environmental education and help implement the national environmental education strategy. To do this we:

- Formed environmental education units in institutions related to the environment and education
- Trained technicians, mayors, legislators, and decision-makers about the environmental reality of the nation based on the diagnostic content of the National Environmental Education Strategy and updated studies
- Trained technicians in the design, formation, execution and evaluation of environmental projects
- Developed national parks as educational opportunities for visitors, by building interpretative trails, interpretation centers, and training guides and park guards as environmental educators

Nonformal environmental education encompasses the vast variety of educational opportunities, such as programs and exhibits at zoos, museums, nature centers, and parks; workforce training and education; civic and religious programs; extension activities; programs with leaders, decision-makers, and elected officials; and work with NGOs.

GreenCOM's approach to nonformal education was to encourage a massive training effort, focusing on technical staff of a variety of relevant institutions, interpretation training for parks, and agricultural extension workers.

Formation of Technical Staff of the Involved Institutions

At the beginning of its operations in El Salvador, GreenCOM created a multi-disciplinary team of technicians from different institutions related to the activities of the national environmental education strategy. These institutions were both public and non-governmental; representatives of public relations firms and the media were invited to participate.

A first task of this multi-disciplinary team was to learn the environmental issues in El Salvador through a series of seminars named "immersion workdays," in which the group analyzed environmental themes with the assistance of the best national experts in the subject. The team members later planted the seeds for creating environmental education units within their own institutions, which eventually multiplied the training to other groups of people.

Training of NGO Technical Staff

Training key staff in environmental NGOs or lead agencies ensures that the environmental education later offered to the public has a common focus and methodology. This training should stress the methodology for developing environmental projects in communities or neighborhoods, such as:

- Participatory techniques for environmental assessments of the community
- Design and planning of environmental education programs
- Design, testing and production of EE materials
- Monitoring and evaluation of EE programs

GreenCOM developed a training program for NGO technical staff about the steps to follow for the design, execution, and evaluation of EE projects. This training program was theoretical and practical; after each workshop the participants completed an assignment, the results of which were the basis for the development of the following workshop and the following activity. For example, the first workshop dealt with techniques for conducting a community assessment for an EE project. The participants were given two months to carry

The news media says that it will address environmental themes if the public is interested.

out their assessment. The results of these assessments were used in a second workshop where participants learned to plan an EE project. As part of the planning, participants discovered training needs in graphic and radio materials production. A final workshop at the end of the process provided tools for evaluating their EE projects.

As a result of the training process, a number of the NGOs submitted requests for project funding to the Initiatives Fund of the Americas for El Salvador. Many of these requests were approved and resulted in successful educational projects.

Training Environmental Interpretation Specialists in National Parks

National parks, both natural protected areas and urban recreational sites, could be environmental education opportunities for the citizens. The "natural" national parks can introduce visitors to the natural cycles and importance of the environment for human life. In this sense, they are educational opportunities about natural resources such as water, forests, biodiversity, and their sustainable management. Environmental interpretation is the discipline that creates different instruments like interpretive trails, visitor centers, exhibits, and slide shows. Training for interprèters should cover:

- Design of interpretive instruments: paths, display boards, exhibits, etc.
- Preparation of low-cost educational materials
- Techniques for giving educational talks
- Use of educational props and aids
- Human relations and treatment of visitors
- Management and guiding of groups
- First aid

Urban recreation parks, zoos, museums, and similar sites can also become opportunities for the public to learn about the urban environment, water systems, air concerns, and the proper disposal of wastes. In this sense, the placement of trash cans in these parks is an important ingredient to the practical education.

The national parks of El Salvador are co-managed by different government institutions (e.g., the Salvadoran Institute of Tourism and the Office of National Parks and Wildlife of the Ministry of Agriculture) and NGOs (SalvaNatura, AMAR and Cedro). GreenCOM created an inter-institutional team of technical staff from each of these institutions and developed with this team an ambitious training program to improve EE and environmental interpretation techniques.

This group of environmental interpreters developed a training exercise for more that 120 park guides and guards in the nation's principal national parks. In these parks, the team established different interpretive trails. They later played a fundamental role in the reform of the Museum of Natural History and in the creation of a new educational tool for children called "ecological carts," mobile wagons that carry articles for interactive learning.

Currently, the team is assisting the National Secretary of the Family in incorporating an EE component in all the recreational parks that the institution is constructing.

INFORMAL ENVIRONMENTAL EDUCATION

The majority of the people in El Salvador depend almost exclusively on the mass media to acquire information with which they form opinions and adopt behaviors. It is assumed that public awareness, boosted by the media, will create a greater demand for environmental legislation and for environmentally sound decision-making.

The news media says that it will address environmental themes if the public is interested. The public, on the other hand, is more likely to display interest in the environment if it has the opportunity to hear about the topic regularly, a task that only the communications media can do.

The fact that the environment has been a topic of global concern can help generate media coverage. The communications media will be interested in dealing with such a "fashionable" topic if they have reliable, valid, and relevant information. Thus, the first strategic guideline in increasing media coverage of the environment is to establish

Soon the news media were competing to address topics they saw affecting the health and well being of the population.

the channel by systematically informing journalists about relevant environmental topics.

Developing interest in environmental problems among the media in El Salvador was not an easy task. GreenCOM supported numerous meetings with the owners and managers of the different media, selling the idea that environmental topics were inescapable and that the communications media had the opportunity to get ahead by anticipating the interests of their readers, radio listeners, and television viewers. Finally, some media (including the two most important newspapers of the country) assigned journalists to cover the environment. GreenCOM offered to give these reporters all the assistance necessary to do this work well.

In 1994, the First National Environmental Journalism Encounter Conference attracted 45 journalists. Some prepared commentaries on the management of solid waste, which was viewed by the population of the capital city as a serious problem. These first reports were followed by other negative aspects of environmental problems. The reporters seemed to be discovering facts that previously passed unperceived, such as the dangerous pollution of the river passing through the capital or the heaps of trash that were mounting on many of its banks. Soon the news media were competing to address topics they saw affecting the health and well being of the population. The interest of the population generated a demand for more information, fed by the NGOs, as reliable sources of information about these topics. By the Third National Environmental Journalism Encounter, attended by approximately 150 people, the coverage of environmental topics was reaching 60 to 70 reports per month, with even some editorials on environmental topics.

Inform Communications Media about Environmental Themes for Stories

The institution responsible for the national EE strategy should take on the responsibility of providing environmental information to the media or serving as a link between the media and specialized sources of information. Trained technical staff may be able to cover this role of specialized sources to be consulted and interviewed by the different media.

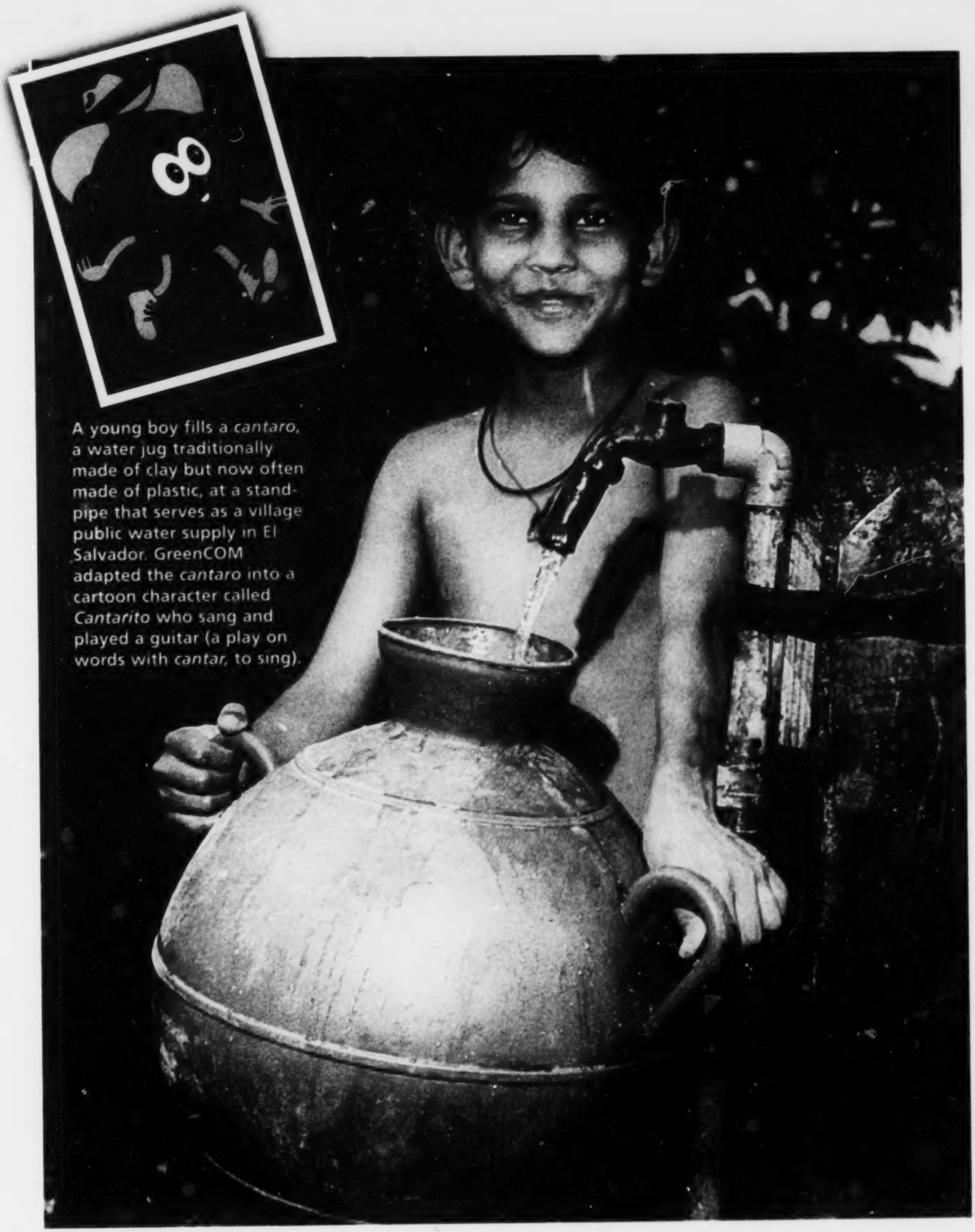
Some news organizations consider environmentalists to be influenced by the inheritance of the 'hippy' era and its romantic interest in nature. Others identify concern about the environment with political accusation. Others, especially those interested in development, believe that concern for the environment is at odds with the need for countries to develop economically, sacrificing environmental quality. Relating environmental themes to economic and health issues often attracts attention since they are already important issues.

Journalists depend on decisions from their editors on what and what not to publish. Therefore, gaining media coverage is also the product of a series of visits to the managers and chiefs of information to discuss the importance that environmental themes have in the development of the country and the quality of life of its inhabitants. One technique is holding breakfast conferences involving decision-makers from the media and environmental specialists.

Background conferences to analyze specific environmental themes with recognized experts could help provide the news media with environmental information that may turn up in a later story. Environmental institutions should regularly send the news media press releases on their opinions and activities.

Interested journalists will begin to look for further information. It is important to identify these interested professionals and concentrate on them when sending information and invitations to conferences. These first interested journalists should be exposed to projects developed by NGOs and to environmental problems (such as heavily polluted rivers, areas of high erosion, etc.) with guided field trips led by technical staff.

During 1996 and 1997, the principal newspapers in El Salvador published several supplements dedicated to the environment. These supplements were



A young boy fills a *cantaro,* a water jug traditionally made of clay but now often made of plastic, at a standpipe that serves as a village public water supply in El Salvador. GreenCOM adapted the *cantaro* into a cartoon character called *Cantarito* who sang and played a guitar (a play on words with *cantar,* to sing).

BEST COPY AVAILABLE

NO LA
EL ENE
UNA MANITA PARA EL AMBIENTE
VIVIEN
LA NATU
LA CASA DEL AGUA

ENCUENTRO NACIONAL DE EDUCACION AMBIENTAL
Si vives en este país...
¡ayuda a salvarlo!
SAN SALVADOR, EL SALVADOR
13-14-15 DE NOVIEMBRE 1996
HOTEL PRESIDENTE

"If you live in this country, help save it," was the slogan of the GreenCOM sponsored National Environmental Education Encounter held in San Salvador in 1996, shortly after the end of the country's devastating war. The two hands in the poster show people of different politics coming together to mold a new country—pictured as a piece of clay—in peace (left). Other environmental education materials included teachers' guides, videos, audio cassettes, and books (above).

BEST COPY AVAILABLE

El Diario de Hoy
Guanaquín
Sexto Concurso Ecológico
Solidarios con el
Medio Ambiente
Ambiente
El Diario de Hoy

El Guanaquín, a weekly children's supplement to the newspaper *El Diario de Hoy*, carried environmental activities to homes and schools.

BEST COPY AVAILABLE

083101001159

of great use to students and GreenCOM distributed several thousand to schools (see Box 13.1).

To produce these supplements, the newspapers requested technical assistance from GreenCOM, recommending the subject matter and treatment, contacting the most highly regard technical specialists and sources of information, arranging interviews, and reviewing the contents before publication.

Reward Journalists for Their Interest in Environmental Themes

In many nations, few communicators receive acknowledgments for their important work of providing information and shaping opinions. One way to obtain greater media coverage of environmental themes is to create a competition with awards for journalists for published or broadcast works related to environmental themes (see Box 13.2). Numerous private businesses, whose public relations policies are focused on maintaining the best relations with the communications media, are usually willing to finance this type of initiative.

Environmental topics are not only for the news and editorial pages. Many newspapers have special sections for women or for children, financial supplements for business people, sections on agriculture, or development. Given the global dimension of the environment and its relationship with all human activities, it should not be difficult to integrate environmental themes into these sections.

BOX 13.1

The *Guanaquín* Bridges Formal and Nonformal Education

The *Guanaquín* newspaper supplement for children produced by *El Diario de Hoy* is the most successful example of the pairing of mass communication with formal education. This Sunday supplement for children was seen as an enormous potential for youth education as soon as it was launched.

GreenCOM met with executives of the newspaper to urge them to incorporate environmental themes into the popular supplement. It was agreed to dedicate one edition each month to environmental themes. GreenCOM offered the technical assistance as well as reference materials and specialized sources of information.

Guanaquín promoted an annual contest about the environment for all of the nation's children with prizes donated by the newspaper. In 1994, 2,500 entries were submitted for the first contest titled "Let's Paint El Salvador Green." In 1995, the second contest, "Let's Work for our Environment," 10,000 entries were submitted. In 1996, a new contest was announced under the title "Defenders of the Environment" which received 36,000 entries from across the country. In 1997, the *Guanaquín* contest drew more than 101,000 entries.

GreenCOM also evaluated whether teachers were actually using the supplement in the classroom. Eighty five percent of the teachers interviewed and a similar percentage of students used the supplement as a reference source for their homework, planning their science, health, and environment classes and conducting the experiments outlined in its pages.

This children's supplement is an example of how mass media can effectively reinforce the work of environmental education in schools. As a product of the evaluation and recommendation of GreenCOM, the contents of the *Guanaquín* will follow the guidelines and programming of the Ministry of Education for the science, health and environment subject area.

BEST COPY AVAILABLE

BOX 13.2

National Environmental Journalism Awards

In El Salvador, GreenCOM established the National Environmental Journalism Awards in 1996 to stimulate reporters to write about environmental topics and to thank those already covering environmental themes in the media for their efforts.

The prizes are awarded annually in three categories: print media, radio, and television, with a first, second and third place awards in each category. Three private businesses sponsored the awards. The procedures stipulate that a call for nominations be issued to journalists requesting works published or broadcast in the previous year. A jury is formed of two NGO representatives, one representative of the Communications faculty of the University of El Salvador, one technical staff member from the Executive Secretariat for the Environment and one representative of the Association of Journalists of El Salvador (APES). Evaluation criteria were established by the jury.

The awards are given each April during the week of Earth Day. The first event in 1996 for works produced during 1995 received a total of 47 entries. In addition to the nine awards, special recognition was given to one of the daily newspapers of greatest circulation for its contribution to environmental education. In the second event in 1997, 147 works were submitted. Nine awards were given and nine institutions, media organizations, and journalists received special recognition for their outstanding contributions in defense of the environment.

The National Environmental Journalism Awards have achieved in only two years an enormous credibility and prestige in the union of journalists. This is reflected in the increase of nominations for the installments and in the massive attendance at the awards ceremonies, as well as the coverage given by the media.

A NATIONAL EE STRATEGY

Since launching the national environmental education strategy in 1994, GreenCOM has led the nation of El Salvador in the organization and training of an environmental community that participated in a process to design a National Environmental Education Policy. That Policy was begun at a three-day conference called the National Environmental Education Encounter. Three participatory planning meetings were held to involve representatives from the formal, non-formal, and informal EE communities. They created a showcase of the their achievements and built from their successes to fabricate a new plan to continue their work. In small working groups, conference participants had a chance to voice their ideas for the national policy. The conference evaluated environmental education in the country, identified the institutions that could help plan a strategy with the representatives of these institutions, and assigned responsibilities to each institution.

In the ensuing year, representatives from each group fine-tuned the policy for presentation to the Ministry of Education and the Executive Secretariat (now in the Ministry of Environment). Institutions and NGOs developed the capacity to execute their responsibilities.

By 1996 each institution was developing activities under the coordination of the Executive Secretariat of the Environment (SEMA) and the technical assistance and advice of GreenCOM. At the National Encounter for Environmental Education that year the groups formulated a proposal for a national environmental education policy (see Box 13.3).

083101001960

This support-building method guaranteed the adoption of the national environmental education strategy by the institutions involved and built political support for the policy.

BOX 13.3

More Than 1,000 People Confer on EE Policy

In El Salvador, more than 1,000 people gathered for a national conference, or "Encounter," to develop a national strategy that would lead to specific policies implementing environmental education. Even the opposition party showed up at the event, which was opened by the nation's President. One year later a second national encounter kept the public's interest and involvement and led to a more complete implementation of the strategy.

SUMMARY

By working closely with the decisionmakers in the Ministry of the Environment and the Ministry of Education, and by involving professionals in the process of designing and extending training programs, GreenCOM enhanced an entire EE community across the country. The capacity to continue this work has been established within organizations and agencies through the development of offices, procedures, policies, and materials. A framework has been constructed for others to prosper.

Chapter 14

The Gambia Environmental Awards Scheme—Creating Environmental Awareness Through Participation

Irma Allen

In 1995, the National Environment Agency in The Gambia launched an Environmental Award Scheme. In a brief period, with limited financial resources, and in a climate of political uncertainty, the awards competition captured the imagination of the country. Eight awards categories engaged a wide range of groups at both regional and national levels.

The competition created an organizational infrastructure throughout the country that is being used in follow-up environmental planning and projects. The meetings, media coverage, posters, and other dissemination methods that were an integral part of the awards scheme became the springboard for broader discussions on environmental problems and solutions, involving many more people than those who formally entered the competition. All this was accomplished with extremely limited financial resources and—after a July 1994 coup d'état—in an atmosphere of political uncertainty.

This case study describes how the awards scheme was organized and why it succeeded. It shares these lessons with readers interested in a general overview of the program, and also provides details for those who wish to conduct their own awards program. Awards programs, in general, are excellent tools for generating awareness, sparking imagination, and building support. They are usually used in conjunction with other strategies for building awareness and education. Awards programs are most powerful when used in conjunction with teacher in-service programs, media campaigns, small-grant programs, or other communication or education efforts.

THE GAMBIAN ENVIRONMENT AND GAMBIAN POLICY

The Gambia stretches along the River Gambia in West Africa. Natural and human influences have created serious environmental problems. Desertification, deforestation, erosion, and soil degradation are among the issues that affect daily life and future prospects for thousands of people in all parts of the country.

The Gambia had a population growth rate of about 3.4 percent in 1994, one of the highest in the world. Most of its one million inhabitants are employed in the agricultural sector, although migration to the coastal city of Banjul is increasing at an alarmingly fast rate. This, in turn, has exacerbated environmental and health concerns related to solid-waste disposal, groundwater pollution, and the deterioration of infrastructure.

To address these and other environmental concerns, the Gambia Environmental Action Plan (GEAP), the country's national environmental strategy drafted in 1992, sets national priorities in the areas of natural resources, environmental health, and energy. Further, the GEAP identifies three cross-sectoral programs necessary to achieve these environmental objectives: 1) institutional and legislative framework development, 2) improved environmental-information services, and 3) environmental education and public awareness. The GEAP states: "Well-intentioned programs for the protection of the environment and sustainable development of natural resources have failed to avert accelerated environmental degradation and natural-resource depletion. A lack of public awareness of environmental issues remains a major constraint to the success of these programs."

Contests are frequently used by public and private institutions in many countries to interest citizens in some current concern.

NATIONAL AWARD SCHEME

To begin to address this shortcoming in public awareness, the National Environment Agency (NEA) developed a social-mobilization effort focusing on a National Environmental Award Scheme in 1994 and 1995. The NEA is an agency within the office of the Head of State with a 25-person staff and good credibility with the public. Competitions took place on divisional (regional) and national levels in eight categories, including those relevant to schools, businesses, and voluntary organizations. More than 200 individuals and groups entered. Many times that number of people were exposed to the scheme's messages of environmental awareness and action through media coverage, community meetings, the awards ceremonies, and other aspects of the project.

Contests are frequently used by public and private institutions in many countries to interest citizens in some current concern. Factors important to this award scheme's success were mobilizing participants, decentralizing the scheme, financial feasibility, communication, and time.

Mobilization

Participation by a wide range of individuals and groups was encouraged by developing a broad variety of competition categories and by building a media strategy for each step of the process. The award scheme became a major national event.

Decentralization

Planning, implementing, communicating, and decision making took place at the local, regional, and national levels. District Environmental Task Forces were formed to carry out the scheme in The Gambia's geographic divisions. They worked under the direction of the National Steering Committee, but with a great deal of autonomy.

Financial Feasibility

The small budget was decreased even further in July 1994, when a coup d'état resulted in reduced donor funding for government initiatives. NEA spent approximately $5,000 on the scheme, primarily for publicity, fuel costs for the outreach vehicle, some of the prizes, and a portion of the assessment trips in the Divisions. Throughout the process, Gambian public and private organizations donated gasoline and other materials, lent vehicles and other equipment, and otherwise enabled the scheme to go forward with a minimum of funds. If these groups and individuals had not already agreed to support the program through the mobilization and decentralization described above, they probably would not have contributed their own limited resources to the Award Scheme's success.

Communication and Publicity

Throughout the whole scheme, NEA publicized each step of the process through the media, to the general public. At the same time, NEA communicated with the task forces, and they, in turn, with the communities. This two-way street encouraged active distribution of relevant information.

Time

The Awards Scheme took place over a period of a year, thus there was sufficient time to create awareness, sensitize the public, mobilize resources, and build support.

SOCIAL MOBILIZATION AT WORK

The success of many programs and efforts often lies in the degree to which the public accepts the ideas, are excited by the opportunities, and are supportive of the goals. Social mobilization is a way of achieving this support. It is a very broad approach that gives ownership to the community as a whole and retains little "control."

Author Neill McKee (1992) succinctly summarizes the strategies of social mobilization as five approaches to mobilize human and financial resources, as follows:

- *Political mobilization* wins political and policy commitment for a goal; the targets are national decision makers
- *Government mobilization* informs and enlists the cooperation and help of government organizations which can provide direct or indirect support
- *Community mobilization* informs and gains the commitment of local political, religious, social, and traditional leaders, NGOs, women's groups, and others
- *Corporate mobilization* secures the support of national or international companies in promoting appropriate goals
- *Beneficiary mobilization* informs and motivates the program beneficiaries through training, establishment of groups, etc

By most accounts, social-mobilization programs attempt to build national consensus. To do so, programs carry out a national education campaign through all possible channels, gearing up quickly and spreading the word. There is an assumption that by energizing more people to pay attention to a problem, good things will happen. Critics claim that accelerated programs are unsustainable approaches to long-term problems. Social mobilizers respond that these campaigns are merely the peaks in a continuous process of working toward the goal; that publicizing one event or program can have a positive impact on other programs; and that involving the community in the energy of this process will have far-reaching benefits that are not easily gained through other avenues. The National Environmental Awards Scheme is an example of social mobilization. The ways in which it used each of the five strategies listed above is told in the following pages.

Setting Objectives

The National Environment Agency established five objectives for the Awards Scheme:

- Increase environmental awareness among the public
- Promote and encourage public participation in environmental activities
- Promote environmentally friendly technology among relevant businesses and groups
- Demonstrate government recognition of individual and community efforts
- Reward individuals and groups taking positive environmental action

To achieve these objectives, NEA identified potential partners, established a coordinating mechanism to link these partners, and built support among target audiences. NEA wanted to carry out the scheme with a minimum of expenditure (using available resources and infrastructure) and maximum participation from the community at large.

The NEA Executive Director formed an Environmental Awards Steering Committee with representatives from organizations that ranged from The Association of Non-Governmental Organizations (TANGO) to the Ministries of Education, Interior, and Health. A total of 14 individuals served on the committee. NEA served as the facilitator and secretariat. The committee members included seven ministry representatives, and one representative each from the municipalities, womens' organizations, NGOs, the technical training institute, and the chamber of commerce.

The Steering Committee had many tasks during its tenure. It first modified and approved the plan for the whole process, including the eight awards categories. It also discussed the choice of a logo and the entry forms for the competition designed by the NEA. Once the Divisional Task Forces were constituted, the Steering Committee defined their role, guiding their activities and monitoring their progress. The Committee was largely responsible for the media campaign, helping to design and implement it. The Committee also participated in the development of the judging system and discussed the types of prizes to be awarded. Some members of the Steering Committee took an active role visiting projects as part of a sub-committee, which reviewed all the top entries in each Division for the selection of the national winners.

Decentralizing the Scheme: The Divisional Task Forces

The NEA next approached the Commissioners, the heads of government of the country's regional divisions, to request that they serve as focal points for the Awards Scheme in their areas. All five agreed to appoint Environmental Task Forces to operate the program. While the task forces used the logo, entry forms, and other materials developed centrally, they had autonomy and decision-making power in determining how the scheme would unroll in their divisions. Although some variations existed among the Divisions, the task forces generally included the following members:

- Divisional Commissioner
- Assistant Divisional Commissioner
- Natural Resources Officer
- Divisional Health Team Officer
- Divisional Agricultural Coordinator
- Divisional Education Officer
- Divisional Forestry Superintendent
- Community Development Officer
- Field Officer of NGOs, such as Save the Children, Action Aid, and the Child Support and Rural Development Agency (CYSARDA)
- Divisional Councilors (including Chiefs)

THE COMPETITION: SOMETHING FOR EVERYONE

Eight categories of competition were established to encourage participation from every element of Gambian society—young and old, women and men, rural and urban, industry and microenterprises, government and NGOs, groups and individuals. Thus, the following types of activities qualified: school clean-ups, dramatists' performances, entrepreneurs' inventions, and neighborhoods "clean" income-generating projects, and others. (See Table 14.1 for a list of the award categories, their target groups, and possible activities.)

Broad criteria guided what types of projects were eligible within the eight categories:

- Environmental rehabilitation activities
- Activities that enhance the environment through sound and/or innovative natural-resource management, education, or energy use
- Achievements of individuals or groups that have campaigned, championed, or advocated for environmental causes

The major reason for holding eight competitions simultaneously was to maximize the number of people who could enter. The categories were chosen to focus attention on environmental priorities, which needed greater public participation, e.g., sanitation, sustainable agriculture, use of appropriate technology, reforestation, land rehabilitation, and sustainable development. A competition for women was provided to create an incentive for women's groups (typically formed to create income-generating projects) to become environmentally sensitive. Ultimately, these groups might integrate environmental strategies with profitable projects.

Another important consideration was to promote activities that people would not only want to do, but also would be able to do given their existing resources, such as time and equipment.

The individual competitions were broad in scope to allow innovation and more equitable participation. At one point, more specific activities for schools were discussed, but the Committee believed the schools with greater resources might out-compete those with fewer materials and money, and chose to keep the competition accessible to all.

Finally, the competitions were designed to generate activities in three broad, priority areas:

- Clean and beautiful surroundings
- Appropriate technology and sustainable development, and
- Clean and safe industry and enterprise.

Eight award categories, their target groups, and possible activities:

LAUNCHING THE AWARDS SCHEME

The Head of State officially launched the Scheme in April 1994, at a meeting of the National Environment Management Council. At the same time,

Table 14.1 Eight Categories for Gambian Environmental Awards Scheme

	Category	Eligible Participants	Eligible Activities
1.	Clean Schools, Clean Surroundings	Schools and other educational institutions	Clean-ups on school grounds or the surrounding community
2.	Clean Ward	Groups, associations, the public at large	Clean-ups within the ward or surrounding community
3.	Women and Environment	Women's groups and associations	Environmentally sustainable projects, e.g., tree planting or cooperative vegetable gardens
4.	Community Sustainable Development	Individuals, groups, and associations	Environmentally sound innovations that improve the quality of life
5.	Appropriate Technology	Individuals	Environmentally friendly technology that facilitates work
6.	Clean Business and/or Industry	Companies and industries	Clean technology, appropriate waste disposal, clean premises
7.	Clean Enterprise	Businessmen and businesswomen	Clean technology, appropriate waste disposal, clean and safe premises
8.	Advocacy and Promotion	Individuals not employed in the environment sector	Projects that promote environmental issues locally, regionally, or nationally

NEA introduced a logo, entry forms, and posters in Banjul and in the Divisions.

The NEA Executive Director and Environmental Education Officer visited all Division Commissioners to enlist their participation and assistance and to plan how to publicize the Scheme regionally. These visits proved fruitful. In each case, the Commissioner decided to form and chair a task force to implement the Scheme in his division.

NEA also embarked on two major publicity activities at the national level: a multi-media outreach program and a media campaign. NEA worked with the Agriculture Communication Unit on the outreach program. Using the Communication Unit's vehicle and a portable generator, a team visited 35 villages and held meetings, displayed posters, and played films and cassette tapes with environmental themes. More than 6,000 people attended the various meetings, more than 25 percent of whom were women and about 10 percent of whom were youth. These meetings provided general information on environmental topics and then introduced the Awards Scheme. The team reported lively question-and-answer sessions, many with community members who had never before had a discussion about the environment with a government official.

As part of a media campaign, NEA regularly provided articles to the newspapers. In addition, the agency, with the assistance of a local consultant, developed a series of interactive radio programs broadcast through Radio One FM, a popular private radio station. A team from NEA, including the Executive Director, answered questions phoned in by listeners in a format that proved highly successful.

Each Divisional Environmental Task Force planned the publicity in its own Division. This meant that each plan responded to local audiences and local media channels. Below are some examples:

Promoting to Farmers

The Upper River Division Task Force held meetings for farmers about the impact of agriculture, livestock, and forestry on natural resources and about the Scheme. In addition to interest in the competition, the meetings resulted in specific vil-

BEST COPY AVAILABLE

lage requests for follow-up meetings on environmental protection.

Working through Community Leaders

The MacCarthy Island Division Commissioner invited community leaders to a special meeting to discuss the Scheme. Guests included religious leaders, local officials, and representatives of youth and women's groups. The Commissioner explained the Scheme and asked these key individuals to support the Scheme through their channels.

Appealing to User Groups

The Western Division invited NEA to set up an exhibit at the National Livestock Show to display logos, posters, and other information. The NEA staff answered questions on the Scheme and distributed entry forms.

Focusing on School Administrators

In the North Bank Division, the Commissioner convened a meeting for primary and middle school headmasters to introduce them to the scheme and encourage them to initiate activities in their schools.

Multiplying Efforts through Teachers

In Greater Banjul, a meeting was held with teachers about the Awards Scheme, where the discussion turned to the role that teachers play in helping students acquire the concepts, skills, and attitudes needed to interact wisely with the environment. Teachers also asked about the role of the NEA.

Word spread beyond the people actually attending the meetings, listening to the radio, or otherwise participating in publicity activities. For example, students in several schools organized clubs and initiated school-wide activities. Indeed, at the end of April, when a NEA team made follow-up visits to all five divisions, they found that most traditional and religious leaders, *alkalos* (mayors), women's groups, youth groups, and others knew about the Awards Scheme and its objectives.

ASSESSMENT

Assessment consisted of two steps: verification to ensure that what was reported on the entry form actually took place; and judging, to determine which activities merited prizes.

Designing an Assessment Strategy

NEA developed a verification procedure and judging criteria for the Steering Committee. The Committee decided that the Divisional Task Forces should judge the entries, using common criteria (see Box 14.2), rather than forwarding the entries to national decision-makers. NEA produced uniform judging forms and met with each task force to train for the assessment process and begin making plans for prize presentations.

Each meeting followed a similar pattern:

- Review of the progress of the Scheme
- Discussion of how to carry out field visits to verify and judge each entry
- Distribution of judging forms and training on how to use them
- Schedule the assessment
- Discussion of the prize-giving
- Discussion of a general time frame

Each Divisional Task Force then carried out its assessment using its own resources. Again, perhaps because the task forces had ownership in the process, and were given real decision-making authority, they were willing to spend their own money on travel and other expenses.

Each Division carried out the assessment slightly differently. The MacCarthy Island Task Force divided up the entries among the group. For example, the Education Officer was primarily responsible for visiting schools, interviewing the participants, observing the impact of the environmental activities on the school, and completing the judging form. In the Western Division, the entire task force created a grid to judge each entry as a group. In the

0831010001862

BOX 14.1

Four Major Criteria

- **Degree of participation:** for a group, the percentage that participated. For an individual, the level of committment and motivation exhibited.
- **Cleanliness:** did appropriate solid waste disposal, reuse, recycling take place?
- **Magnitude:** did it cover a large area or poulation, or deal with several environmental issues?
- **Sustainability:** has this, or will this, become an ongoing activity?

Greater Banjul Area, an assessment team spent an average of four hours visiting each entry. Interestingly, while the committee members visiting schools reported some difficulty in differentiating among the many school clean-up activities, they had no hesitation in selecting the winners, which went far and beyond clean-up and beautification activities.

Each Division selected first-place winners in each category and, if there were sufficient high-quality entries, second and third places. The names of the top three overall winners (regardless of category) were then submitted to the National Steering Committee as candidates for the national prizes. A subcommittee was constituted to visit each of the finalists' projects to observe the activity, interview participants, and seek opinions from others in the community about the impact of the activity. The National Steering Committee reviewed the subcommittee's findings and selected the three national winners.

The Steering Committee decided that the prizes should be appropriate tools or other equipment to allow the winners to continue with their work—prizes included wheelbarrows, watering cans, gardening tools, and the like. The winners also received certificates, and each entrant received a letter of appreciation for having participated. Funds for prizes ($25,000) were provided by the U.S. Agency for International Development and the United Nations Development Programme.

THE WINNERS

In total, there were 210 entries. Of these, 94 were prizewinners that received certificates and tangible, useful prizes; the rest received letters of appreciation for their participation.

Each Division submitted their three top entries, regardless of category to the national competition. From these, the National Environmental Awards Steering Committee selected three national winners through actual visits to each of these projects. The prizes were determined through consultation with the recipients to ensure the prize would be valuable to them. The First prize winner was given a borehole (well). Second prize was $5,000 to be spent according to a participatory rural appraisal study. Third prize was fencing materials requested by the recipients. In addition, each of them was nominated for UNEP's Global 500 Award.

The National Winners

First Prize

Tahir Ahmaddiyya Muslim High School—A Model of Environmental Management

The students in this Lower River Division school have turned their school into a model of environmental management. They planted drought-tolerant trees, plants, and an orchard; collected rain water for use during the dry season; made compost and used organic fertilizers in the gardens; and established a waste-disposal system with recycling measures. In addition, they established an Environment Club, which produces drama on environmental issues for neighboring schools and communities. This has been so successful that other schools in the area are copying the idea. The school is relatively small, with 450 students.

The students in this Lower River Division school have turned their school into a model of environmental management.

Second Prize

Touba Taffsir Village Community—Preventing Bush Fires

This Jahanka farming village in Upper River Division has been collectively managing their environment (a large forest, livestock grazing area, and an orchard) around their village for the last 18 years, primarily by preventing bush fires. At the end of each rainy season, the village Imam (Muslim leader) and the elders of the village mobilize the community in bush fire control measures, including fire belts and fire tracing. If by accident there is a fire, the entire village is mobilized to control it. The village and surrounding area are in outstanding condition. The government and others in the Gambian civil society are now trying to integrate this approach into other natural-resources-management programs.

Third Prize

Somita Kambeg Kafo—Community Sanitation, Health, and Environment Improvements

This kafo (group) consists of about 200 women in Somita Village in Western Division, who are successfully carrying out an environmental-health program that involves regular cleaning of the village and proper waste management. The kafo also established an environmentally friendly garden, where compost is used and water is conserved. Through songs and drama, the women in the kafo teach others in the community about sanitation and the environment, while providing entertainment.

Additional Entries

Following are examples of entries in each category. Every category did not draw equally from every region of the country. As Table 14.2 indicates, some categories attracted more entries from rural areas, and other categories from urban areas.

Table 14.2 Categories of Entries by Region

Category	Rural	Urban
Women in Environment	high	low
Sustained Development	high	low
Clean/Safe Business	low	high
Appropriate Technology	low	high

Clean School and Clean Surroundings: Bakau Newtown Primary School

More than 1,000 students, teachers, and parents worked together to maintain a school garden and compost pile, plant fruit trees and flowers, promote an inter-classroom clean-up competition, and clean the area surrounding the school. Families contributed money to purchase plaster and paint for the classrooms and additional trees and plants.

Enhanced Ward: Serrakunda East Kafo

Serrakunda is a peri-urban area with a very high population density in the Greater Banjul area. There are many street vendors and limited street-cleaning services. The Serrakunda East Kafo consists of a group of people, mostly women, who have organized themselves to systematically clean and protect an area surrounding their homes. They provide and maintain refuse bins, sweep the compounds, supervise the proper disposal of human waste, and plant trees and other plants to keep the area clean and attractive.

Women and Environment: Women's Cooperative Crop Production

A women's association in Jamwelle Village mobilized 70 people to work together on a year-round gardening, tree planting, and a sheep and poultry project. All these activities were complementary. For example, the poultry ate leaves from planted leucaenia trees, chicken manure was used to fertilize the vegetable garden, and both the vegetables and the poultry are used to improve the diet of the community.

Community Sustainable Development: The Sea Defense Project

Banjul's Muslim community reduced coastal erosion around the community's cemetery. Rallied

More than 1,000 students, teachers, and parents worked together to maintain a school garden and compost pile, and plant fruit trees and flowers.

by a committee led by the Imam, thousands of Muslims filled in a cliff face with boulders and wire reinforcement. Community members donated money to purchase materials and volunteered their time. Men, women, and children worked side by side over a period of seven weeks depositing roughly 1944 cubic meters of boulders. The magnitude of the initiative was so great that the government agreed to maintain the cliffs.

Appropriate Technology: New Horizons Technologies

Another project related to coastal erosion took a very different approach. Sand mining to make construction blocks has depleted many beaches. New Horizons Technologies, a family-owned company, began experimenting with making blocks out of laterite dust and cement. The company has purchased two presses and is manufacturing and promoting the blocks.

Clean, Safe Business/Industry: Shell Marketing Gambia Ltd.

This unusual entry came from one of Gambia's few large companies. The project consisted of building a new airplane fuel depot at Yundum airport to increase the storage capacity. The facility, which was in the last stages of construction, is impressive because of the many human and environmental protection measures that were incorporated in its design. Among these are: (1) a drainage system for the collection of all possible leakage and spillage which could occur during operations, (2) warning equipment, (3) emergency shutdown devices, (4) an effective communication system, (5) a fire-fighting system, (6) staff training for safety. The sub-committee of the National Environmental Awards Steering Committee which visited these premises had no idea that such modern environmental-protection measures were operating within the country. The Award Scheme helped to publicize this worthy endeavor which can serve as a model for other industries and businesses.

Clean Enterprise: Awa Camara

This woman is a market vendor who sells vegetables in a large, congested market. Awa ensures that her stall has a container (usually a used cardboard box) for disposal of old vegetable leaves and other such waste. She also has a plastic bucket, which she used to fetch water from the faucet to wash her vegetables. She then discards the water in the nearest drain. As a result, her stall is clean, dry, and attractive.

Advocacy and Promotion: Njogu Touray

Njogu Touray is a well-known Gambian artist, whose concern about environmental protection grew out of his appreciation for the beauty of nature. Increasingly, his vivid, bold paintings have focused on pointing out environmental degradation caused through human activity. He also became concerned about lead paint and other environmentally degrading materials used by artists and, thus, has spent the last five years experimenting with natural resins, instead of plastic sprays, and using natural pigments for his paintings. He is hoping to produce a booklet on natural art materials of The Gambia for one of the next Award Schemes.

BRINGING PEOPLE TOGETHER: THE PRIZE CEREMONIES

The Steering Committee awarded in-kind prizes, not cash, to regional and national winners as visible incentives to others to participate in the future. Prizes such as wheelbarrows, rubbish bins, tools, sports equipment, and other items will help contestants continue their activities. NEA purchased these items, as well as certificates, plaques, and trophies.

Each Division organized and conducted a large, public celebration to award the prizes to winners, with people often traveling long distances to take part. A team from the NEA, including one or two members from the National Steering Committee, delivered the prizes to the Divisions and participated in the awards ceremonies. (See Box 14.2 for a typical ceremony agenda.) The NEA Media Offi-

083101001168

Banjul's Muslim community reduced coastal erosion around the community's cemetery.

cer telephoned a report to radio and newspapers in Banjul at the end of each ceremony. However, the agency could not provide funds for the ceremonies themselves.

These ceremonies provided a way for different groups to come together to support a common cause. For example, the event in the Western Division brought together all the Division's chiefs for the first time since the District Commissioner had taken office.

The participants included regional authorities, traditional and religious leaders, prizewinners, friends, school children, and music and drumming groups. The regional leaders were involved in presenting the prizes and making the presentations. There was much rejoicing, dancing, and drumming, and the prizes were well appreciated. As the truck loaded with the prizes went along the road, or stopped to wait at a ferry crossing, people would approach it, cheer, and clap.

The National Awards Ceremony took place jointly with the opening of a workshop to launch the National Environmental Education Strategy. The Minister of Agriculture served as master of ceremonies, and the Minister of Education read a message on behalf of the Head of State. Two other cabinet Ministers also attended. The country representatives of both USAID and UNDP made presentations. Most of the Divisional Commissioners were present, and so were many dignitaries and members of the business community and NGOs. At this event, the prizes for the Greater Banjul winners and for the three national winners were presented.

A broad cross-section of people engaged both in formal and non-formal environmental education, including the members of the National Environmental Awards Steering Committee, remained at the site for a two-day workshop to review and approve the proposed National Environmental Education Strategy.

BOX 14.2

Lower River Division Awards Ceremony

- Arrival of Guests and Winners
- Introduction by Task Force Chairman
- Welcome by District Commissioner
- Remarks by USAID Representative
- Keynote by NEA Executive Director
- Presentation of Prizes
- Vote of Thanks by a Chief
- Drumming and Dancing
- Departure

WRAPPING IT UP: LESSONS LEARNED

As noted earlier, several factors contributed meaningfully to the success of the National Environmental Awards Scheme: widespread mobilization, decentralization of decision making and authority, feasibility in terms of expectations and resources, open communication, and sufficient time.

Additional strong points include the following:

- *The planning and steering of the Scheme was done collaboratively.* Through the National Steering Committee, representatives from government (the Ministries of Education, Health, Natural Resources, Agriculture, and Interior) and non-governmental organizations helped plan, steer, and monitor the Scheme.
- *There was strong support from the public media.* The newspapers and radio reported the process. A series of interactive radio programs provided information and maintained public interest during the implementation phase of the Scheme.
- *There was full involvement of the National Environment Agency.* From the Director to the typists, the entire staff had a stake in the success of the Scheme. All had different roles to play; each performed his or her role with a high level of commitment and enthusiasm.
- *NEA played a facilitating and coordinating role.* The Agency has good credibility, and the various Ministries, NGOs, and Division authorities fully accepted NEA's role as the facilitator and coordinator of the Scheme.

Each Division organized and conducted a large, public celebration to award the prizes to winners, with people often traveling long distances to take part.

- *Divisional Task Forces had the responsibility for implementing the Award Scheme regionally.* These Task Forces, headed by the Divisional Commissioner, were composed of government extension officers, regional representatives of NGOs, and traditional leaders. Because these people live and work in the regions, they knew the specific environmental problems and were in positions to influence others.
- *There was strong cooperation and support from government, donor agencies, and the community.* The members of the Divisional Task Forces, in particular, gave of their time, voluntarily, adding arduous tasks to an already full schedule. In addition, they shared other limited resources. NEA, as noted, supported the process, and USAID and UNDP funded purchases of prizes.
- *Winners received in-kind prizes.* Providing wheelbarrows, tools, equipment, fencing, and even a well for the top prizewinner was better than giving cash prizes. It resulted in the distribution of vital tools and equipment to groups that could use them, and it provided visual incentive to others to enter future competitions.

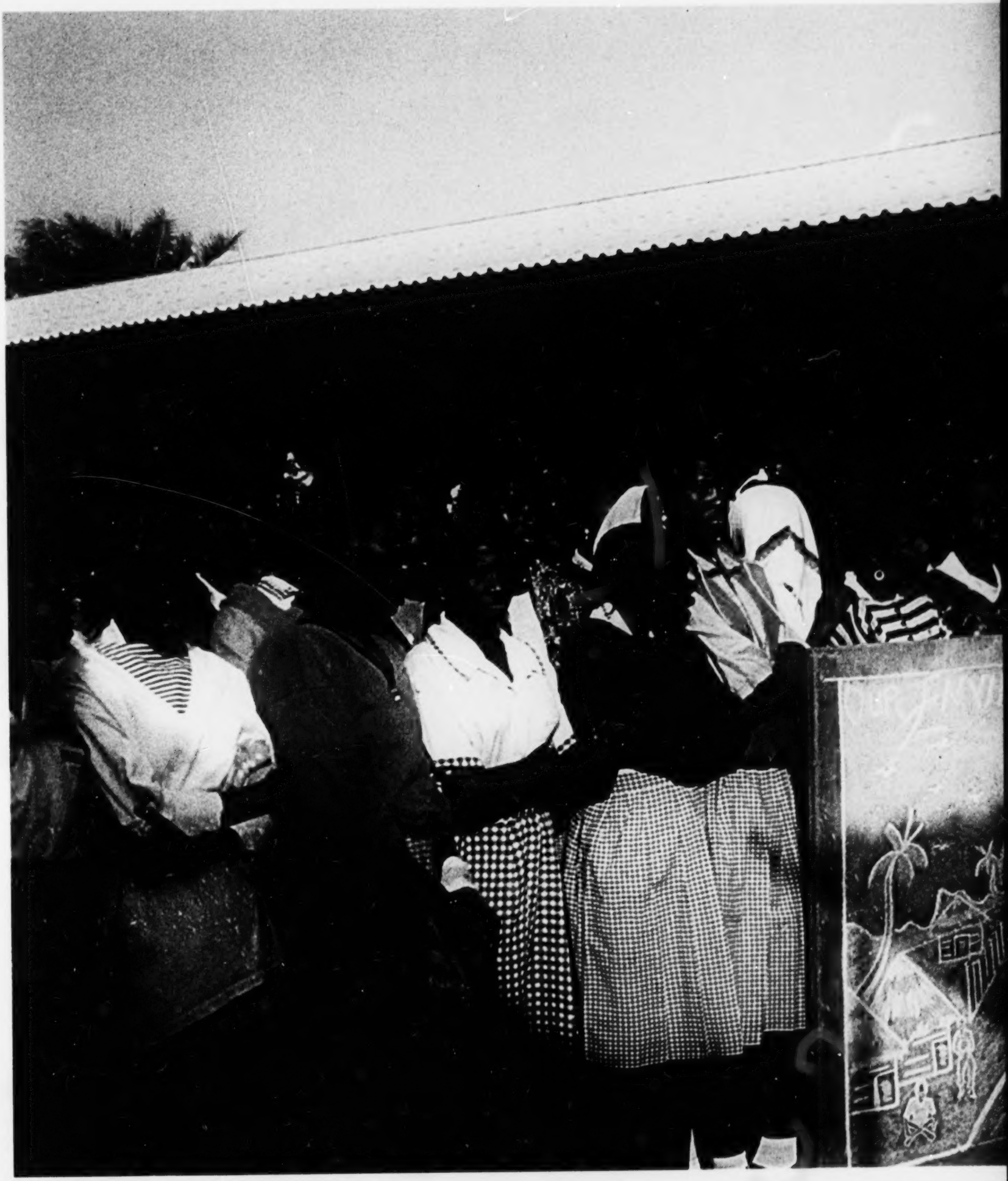
A Few Difficulties

There were several challenges in the development of this particular awards scheme. Though not all would be present in other situations, other concerns will need to be overcome.

- *Coup d'état:* Without a doubt, the greatest problem encountered was the coup d'état which took place about four months into the development of the awards program. An attempted counter-coup took place immediately after. This transition caused great political uncertainty and, therefore, a delay of several months as some donor-funded projects closed. Funds and equipment that were to come through USAID's GreenCOM Project were no longer available. In addition, the Divisional Commissioners (the heads of the Divisional Task Forces) were replaced. It was thus necessary to repeat the process of consultations with the Commissioners to gain their support and commitment to continue to lead their Task Force.
- *Transportation:* Although The Gambia is a small country, transportation is difficult. The roads are very poor in places, and ferry crossings are inevitable. Crossing small rivers and creeks was arduous at best, and sometimes dangerous, particularly when carrying prizes to the recipients.
- *Limited regional facilities*: The Divisional Headquarters had very limited facilities. Thus, entry forms, certificates, assessment forms, etc. had to be produced in Banjul at the National Environment Agency and taken to the Divisions. Every opportunity was taken to "catch" people who were going "up-country" and use them as messengers.
- *Limited financial resources:* Although the aim was to implement the campaign through existing infrastructure and resources, funds to assist with transportation and pay for more radio time would have increased publicity. The Divisions placed a great deal of importance on the prize-giving ceremonies, but no funds were available through the secretariat. In spite of this, the Task Forces went ahead, utilizing existing resources and events, and organized large ceremonies with full representation of the people and dignitaries in each region. These ceremonies became important support-building occasions, which in the future should be included in the budget.

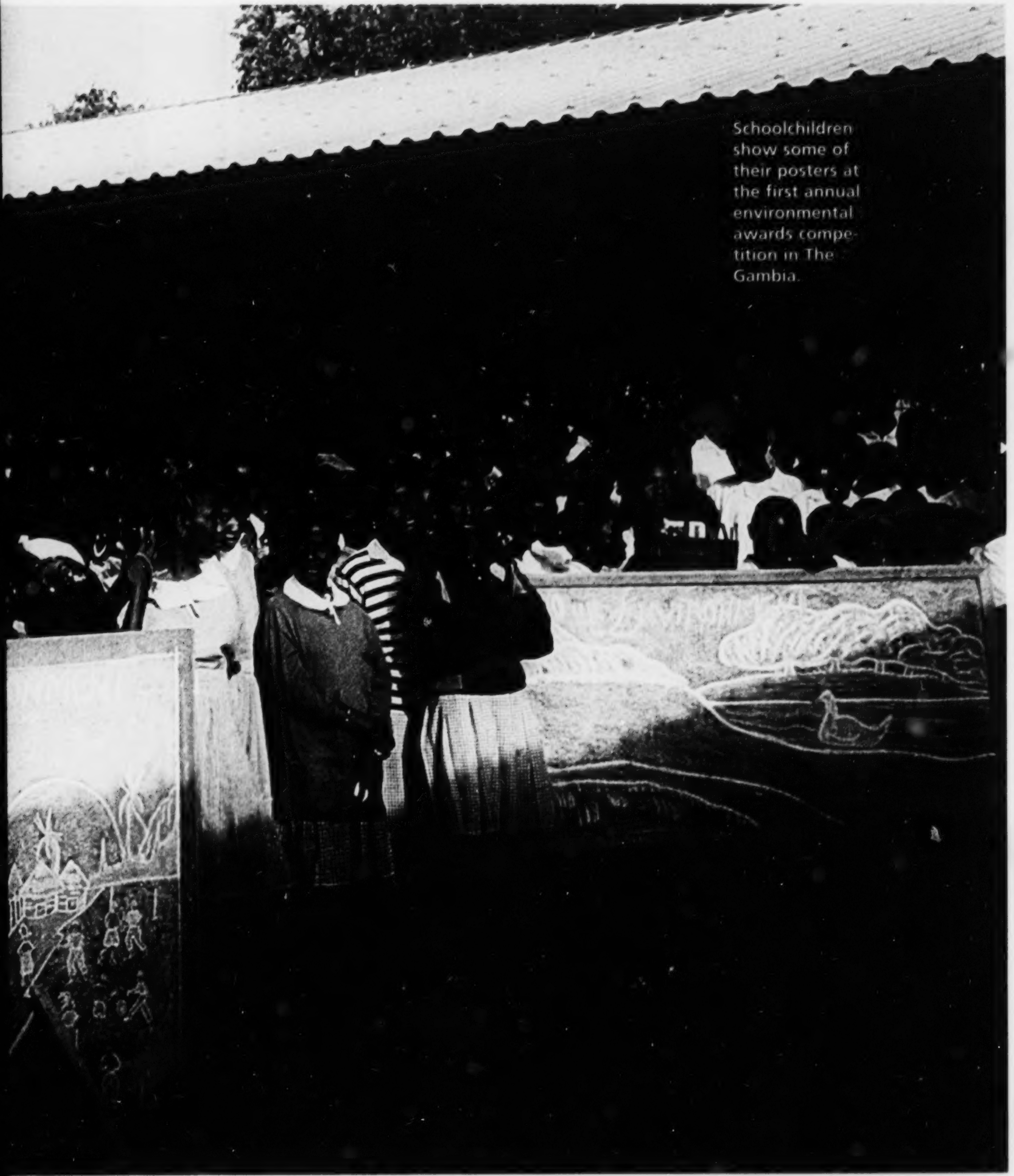
Spin-offs and Extensions

- Several additional programs and projects have resulted from the Awards Scheme.
- An infrastructure (the Environmental Task Forces) was created at the regional level, which is now being used for the decentralization of environmental management.



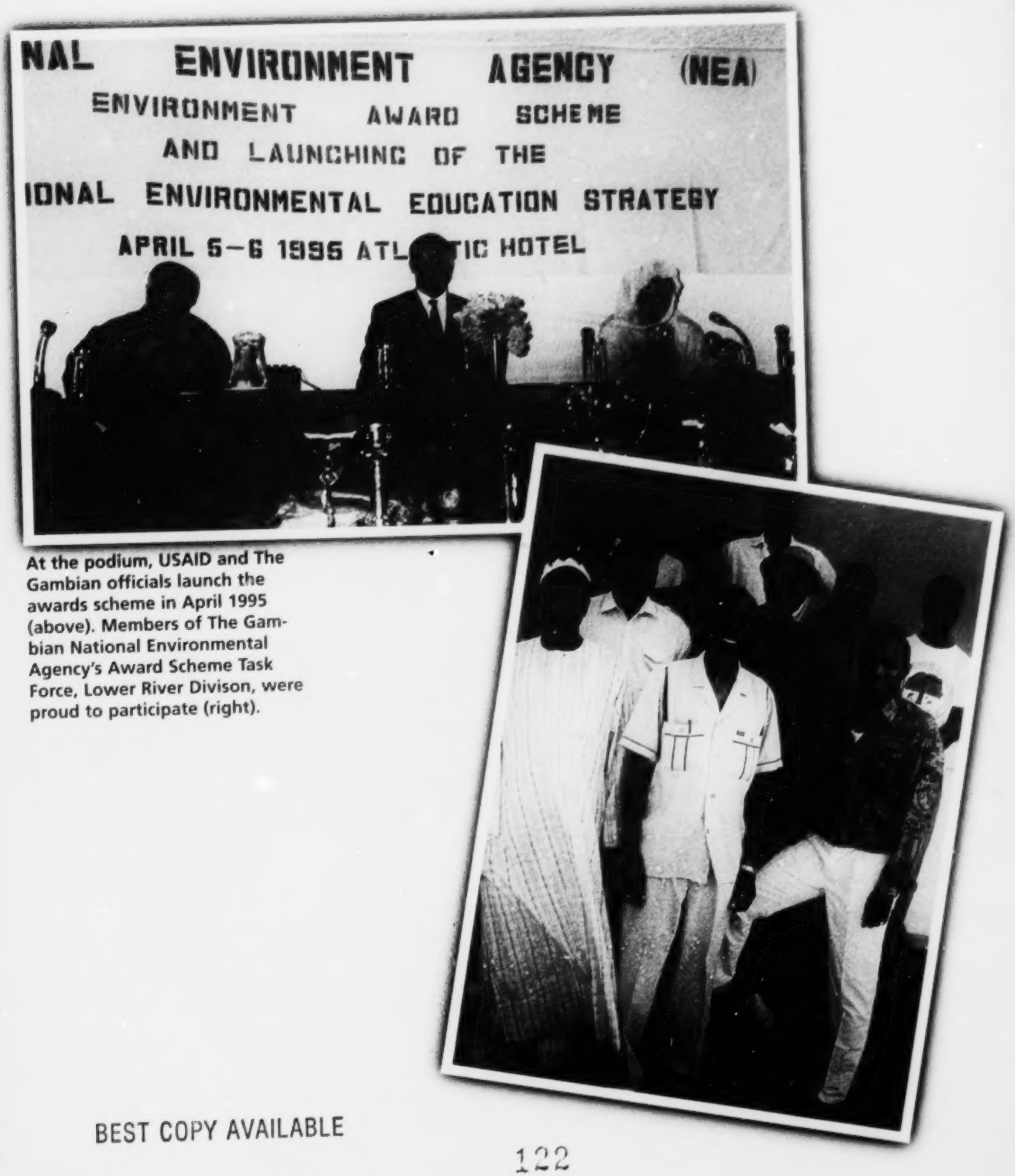
BEST COPY AVAILABLE

120



Schoolchildren show some of their posters at the first annual environmental awards competition in The Gambia.

BEST COPY AVAILABLE


NAL ENVIRONMENT AGENCY (NEA)
ENVIRONMENT AWARD SCHEME
AND LAUNCHING OF THE
IONAL ENVIRONMENTAL EDUCATION STRATEGY
APRIL 5–6 1995 ATL TIC HOTEL

At the podium, USAID and The Gambian officials launch the awards scheme in April 1995 (above). Members of The Gambian National Environmental Agency's Award Scheme Task Force, Lower River Divison, were proud to participate (right).

BEST COPY AVAILABLE

Without a doubt, the greatest problem encountered was the coup d'état.

- The Awards Scheme created an opportunity for staff from NEA and other Ministries to be closely involved with "grassroots" environmental concerns and endeavors. This resulted in stronger links and goodwill for NEA and other institutions in the Steering Committee.
- Many of the participants in the Divisions actually requested visits from extension agents to enlist help with their projects. This provided opportunities for extension officers to meet the expressed needs, rather than the more typical case of planning workshops around topics they think will be useful to residents.
- The lessons learned from the Awards Scheme are being applied to other social-mobilization activities, such as the Participatory Rural Appraisals being carried out to develop regional and local action plans.

NEXT STEPS

Perhaps the greatest impact of the scheme is what will happen to future environmental activities. Will the individuals and groups who entered the scheme sustain their projects? Will they be joined by others? Or will interest decline? To date, several events have occurred that bode well:

- NEA secured funding and successfully completed the second Environmental Awards Scheme. Over 300 entries were received (a third more than in the first Scheme). At this printing, the third Awards Scheme has been launched with great enthusiasm.
- Shell Oil Company, a winner in the first competition, contributed to the prizes in the second awards scheme.
- An additional category is being created for ecotourism to encourage environmental activities among hotels and tourist organizations.
- The National Environmental Award Scheme is now a yearly event, culminating on World Environment Day. It is an accepted strategy to encourage environmental awareness and participation.
- NEA staff all agree that the scheme is becoming easier to implement because the infrastructure is in place and the facilitators have learned from past experience.
- NEA has used the publicity-campaign strategies developed for the scheme in subsequent endeavors. For example, in informing importers and others in the agricultural sector about a newly passed pesticide-registration law, NEA embarked on a media campaign that included interactive radio programs and community meetings.
- The National Awards Steering Committee and the Divisional Task Forces, which were formed to guide and facilitate the Awards Scheme, did not end after the first prize giving. Instead, they began implementing the National Environmental Education Strategy and have agreed to continue to facilitate the Environmental Award Scheme on a yearly basis at the regional level. The National Steering Committee was given a few new members and converted into the National Environmental Education Steering Committee. The Divisional Task Forces work with NEA and, after training some of its members in Participatory Rural Appraisal (PRA) techniques, assist in designing local environmental action plans. (One of the first PRAs carried out was in Tabu Taffsir Community, one of the national winners, to help it determine what assistance it needed as its prize.)

The National Environmental Awards Scheme in The Gambia is not a perfect model. Like all successful programs, it worked well in the context in which it was planned and implemented. For example, the country is small, and although transportation is scarce, a few media vehicles can cover much of it. Leadership, flexibility, and a commitment to a better environment, however—commodities which exist in countries large and small—can create the conditions for an awards scheme to engage people in environmental improvement.

References

McKee, Neill. (1992.) *Social Mobilization and Social Marketing in Developing Countries: Lessons for Communicators.* Penag: Southbound.

Chapter 15

Water Conservation in Jordan: A Novel Approach to Curriculum Development

Mona Grieser, Barbara Rawlins, and Khulood Tubaishat

Paramount among Jordan's national concerns is the scarcity of water. Water scarcity is so serious that the peace treaty between Israel and Jordan, signed in 1994, included Jordanian water rights. This landmark initiative addressed longstanding political tensions between the two countries, and the terms of the water section are still being argued today. Extensive mass-media coverage highlighting the agreement served to further focus the nation's attention on the water-shortage issue. Water is scarce across all of Jordan. The whole country is arid, or semi-arid, with a dearth of water for farming, grass, and even trees.

Like other tropical countries, Jordan has only two seasons, a rainy season and a dry season. The rainy season from October through April produces 85 percent of the nation's total annual rainfall. Precipitation is the predominant source of fresh water, feeding the Jordan and Zarqa Rivers and replenishing natural springs and underground pockets of water.

All known sources of water across the country are already being utilized, and those are drastically reduced by four factors. First, 92 percent of the rainfall is lost to evaporation. Second, Jordan's neighbors, Syria and Israel, have diminished water flow by building hydroelectric dams further upstream on the Jordan River. Subsequently, Jordan has become highly dependent on these countries for its water needs. Third, Jordan's population has expanded enormously due in part to successive waves of refugees from Israel and Palestine and to the fact that Jordan has one of the highest population-growth rates in the world (3.3 percent); the increased population increases demand for agricultural water as well as domestic water. Fourth, modernization and increasing expectations about quality of life have also changed domestic water behaviors.

Because the supply of water no longer meets the demand for water, conservation has become Jordan's focus. Rationing of water has become a way of life. Recently, legislation was passed that requires newly constructed homes and apartment buildings to have water-storage tanks fed by runoff rainwater in addition to piped water. But regulation and municipal management alone will not suffice to resolve Jordan's water deficit. Individual citizens need to do their part, and although Jordanians are now fairly efficient water users, additional voluntary reductions of water use are needed at the household level.

This chapter describes how GreenCOM worked with a Jordanian NGO to address this need through a tailored curriculum within Jordan's schools. The starting point was to understand, through research, popular perceptions about water scarcity: how do Jordanians perceive the water problem? Next came the design of an educational curriculum targeted on knowledge gaps revealed by this research. Importantly, the design of this strategy was carried out in an interactive way, in contrast to what most Jordanian educators had experienced before, and it was this participation that significantly contributed to increased environmental learning. Key to the strategy as well was gender sensitivity—the curriculum addressed boys and girls differently based on what the research told us about their varying perceptions about water scarcity and their different roles in domestic water use. The result has been a major increase in environmental knowledge and the development of a research-based, interactive, and gender-sensitive

Although students generally were knowledgeable and aware of water problems in Jordan, they did not feel that they could contribute to their solutions.

process that can be used throughout Jordan and the Middle East.

HOW DO JORDANIANS PERCEIVE THE WATER PROBLEM?

To answer this question, the Royal Society for the Conservation of Nature (RSCN), a local non-profit environmental organization supported with technical assistance from the GreenCOM Project, held a series of discussions with students, teachers, and school principals in 1994. RSCN found that both boys and girls were well aware that water was an issue in the country. However, there was relatively little understanding that water scarcity was not a new issue, indeed had been a problem for centuries. In addition, there was remarkably little understanding that water scarcity was an endemic feature of a climate that is essentially arid or semi-arid.

Furthermore, men and women perceived their roles in conserving water very differently. While men and boys saw their roles as promoters of water conservation, women and girls saw their roles as implementors of conservation measures. Men more often mentioned the need for government responsibility for the issue; women were more apt to personalize conservation measures. For example, when asked for specifics, males could only state one or two ways to reduce water use in the home, often linking water reduction and conservation to those tasks that women were most likely to do anyway (e.g., washing dishes and doing laundry) and less likely to talk about their own uses of water (e.g., the garden, washing cars, shaving, taking showers). Few men talked about water loss through old and corroded pipes and leaking water tanks, one of the principal ways in which water is lost and which would normally be a man's or a boy's job to repair. In contrast, females generally offered several ways to reduce domestic water consumption linked to their own household tasks and personal use. In spite of the high rates of literacy, women's roles in Jordanian society, among both Islamic and Christian families, are largely traditional and revolve around domestic work, children and the extended family.

In general, Jordanians of both sexes believe that women care more about the environment and that women are more responsible for safeguarding the environment than men. This attitude may stem from traditional Jordanian society when women are responsible for fetching water from the wells and allocating it for household use. Women and girls also indicated a more refined sense of the kinds of water available for domestic use: grey water, which many knew could be recycled; rainwater, preferred for cooking and drinking; spring water, purchased in times of rainwater shortages for cooking and drinking; and tap water, used for washing laundry and watering the garden. It is not unusual in Jordan for women to have three separate sources of water (tap, spring, and rain), each with its own specific usage.

Many of the students, teachers, and school principals—of both sexes—believed that they have no control over the country's water supply. While they do see themselves as part of the problem, they don't see themselves as able to contribute to the solution. We found that most people believe that the national water shortage is a problem caused by a combination of government mismanagement, industry dumping, and domestic abuse; but that the solution had to come from government or industry. The students did not see themselves in the role of concerned consumer or environmental advocate, even though they belonged to environmental clubs. Although students generally were knowledgeable and aware of water problems in Jordan, *they did not feel that they could contribute to their solutions.*

A WATER CONSERVATION CURRICULUM

RSCN decided to help tackle the water-scarcity problem at the household level. In an effort to instill a sense of personal control over water usage and spur Jordanian citizens to action, RSCN developed a water-conservation curriculum for its network of secondary-school environmental youth clubs (eco-clubs) with assistance from GreenCOM.

RSCN had started its loosely structured school-based eco-club system several years before, and it the system had grown to include over 300 clubs. Although the clubs' initial focus was on biodiversity, RSCN became increasingly concerned about the growing urgency of the water-scarcity problem in Jordan. RSCN further recognized that its eco-club system provided a good avenue for testing new approaches to environmental education. Schools, which are single-sex in Jordan, volunteer to join the eco-club system and most students volunteer to participate in the club's activities. As a result, eco-club students and teachers are generally highly motivated, and consistently express strong interest in improving their clubs. Most participating schools are girls' schools, further highlighting the link between environment and gender by reflecting the traditionally greater interest and involvement of women and girls in environmental issues.

The curriculum RSCN developed for its eco-clubs focused on persuading students and, through the students, their family members about the need to conserve water at home. The curriculum provided examples of specific actions that households could take to reduce their personal water use. On the basis of the earlier discussions with boys and girls and their teachers, RSCN made a particular effort to highlight things that boys and men could do to personalize their commitment to water conservation. The curriculum consisted of the following five units:

1. The water cycle in nature and water sources in Jordan
2. Reduction of household water use
3. Ground and surface water
4. Ground and surface water pollution
5. Home gardens and irrigation

Because the goal of RSCN's efforts was active participation in water conservation by students and their families, the curriculum stressed interactive learning activities. Each unit included an information section with facts about the topic under study, questions to facilitate discussion, activities for the club, and a student test to be administered before and after the unit.

Activities conducted by the clubs were then linked to a number of specific actions recommended for students and their families to perform independently at home, including:

- Placing a one-liter bottle in the toilet tank to reduce the amount of water needed to flush
- Watering the home garden in the morning or evening, not in the daytime, to reduce evaporation
- Taking showers instead of a bath
- Turning taps off while brushing teeth, washing dishes, and shaving
- Washing clothes in one large load instead of many small loads and reusing the grey water
- Repairing old water tanks and covering and cleaning cisterns, replacing corroded and leaky pipes

How Was the Curriculum Developed? How Were Teachers Trained?

RSCN staff, several teachers, officials from the Ministry of Education, GreenCOM staff, and other experts in education, water, the environment, and administration came together in a participatory workshop in October 1994 to develop the water-conservation curriculum in Arabic. Although a few of the participating teachers had science backgrounds, others were trained in Arabic language, religion, and other specialties. But the contributions of the non-science teachers were vital because eco-club teachers' backgrounds vary as well—from science, to language arts, to mathematics, to religious instruction, to art.

Our approach to curriculum design placed importance on interactive discussions, hands-on experiments, and discovery processes in student learning, and the need to make topics relevant to teenagers' lives. Although these methods are widely used in many Western nations, they constituted a dramatic departure from the traditional way of teaching in Jordanian schools, where lectures are the main format.

The new curriculum had a significant impact on students' knowledge, attitudes, beliefs, and behaviors regarding conserving water at home.

The content of the curriculum was based on information gathered from original interviews with students, teachers, and administrators, as well as from existing curricula from the United States and elsewhere that incorporated interactive teaching techniques. In particular, the curriculum drew on activities used in science curricula in Arizona and New Mexico, which are similar in climate and topology to Jordan.

During the curriculum-development workshop, teachers demonstrated the activities they expected students to be able to perform. In this way organizers monitored the availability of materials for the exercises, how long a given task would take, the ability of teachers to understand the curriculum concepts, and the ability of the students to perform these tasks at their grade level.

The degree of academic difficulty was pitched to a 9th grade level so that younger students would not find it too difficult nor would older students find it boring. Students in grades 8–11 could participate in the clubs.

Sensitivity to the different gender roles was emphasized throughout the design process. For example, a deliberate effort was made to include exercises and activities that would affect both genders. When advocating behavior change in the home, the curriculum included illustrations of men closing faucets while they shaved, men using drip irrigation instead of hoses in family gardens, and men washing cars with buckets rather than a hose—in addition to women washing dishes and clothing. To tailor the curriculum to both rural and urban schools, we included activities that addressed both home garden watering (urban or rural) and irrigation of agricultural land (rural).

During this same two-week curriculum-development period, all the materials, exercises, and teacher's guides were pretested with eco-clubs and their teachers. Revisions made were again pretested. Next, at two-day workshops held in January 1995, RSCN and other curriculum-development-team members trained eco-club teachers on how to use the curriculum. At the training, we gave teachers the new curriculum and a self-instructional teachers' manual that stressed the new interactive teaching methods. The participants "walked through" the teachers' manual, following the instructions step-by-step to ensure a thorough understanding of the lesson.

The Curriculum Worked!

At semester's end, we compared students and teachers from a sample of eco-clubs using the new curriculum with a sample of eco-clubs not using the new curriculum. The results: the new curriculum had a significant impact on students' knowledge, attitudes, beliefs, and behaviors regarding conserving water at home. Of particular interest is the stronger effect the curriculum had on boys than on girls; boys made more suggestions to their parents about ways to reduce water consumption, such as shutting off the tap while brushing their teeth. This finding suggests that when the practice of water conservation is presented as an issue within the male domain, boys are receptive to the subject matter and can become advocates for change.

And, in general, students appear to have served as effective conduits for changing their family's water-conservation behaviors at home as well. They reported influencing the clothes-washing behavior of their mothers as well as their households' garden-watering practices.

The curriculum also appears to have influenced teachers. We found that teachers changed how they conducted their eco-clubs in terms of the content and format of the activities they carried out. Most teachers who were provided with the curriculum (60 percent) implemented a majority of the recommended activities. The curriculum seemed to motivate female teachers more strongly than male teachers: they increased both the total number of activities on water and the number of *interactive* water activities (e.g., field trips, experiments, drama presentations) used in their eco-clubs. Male teachers who got the curriculum also increased the number of *interactive* water activities they used, but did not devote more activities in their eco-clubs to water issues overall.

BEST COPY AVAILABLE

...students appear to have served as effective conduits for changing their family's water-conservation behaviors at home as well.

Also of note were teachers' overwhelmingly positive reactions to the new curriculum. The vast majority (90 percent) indicated they would like to use the curriculum again in the future with new eco-club students.

LOOKING TO THE FUTURE

What does the success of this curriculum mean for future environmental-education efforts in Jordan and elsewhere in the Middle East? We think it shows that when you develop programs on the basis of research, develop curricula in a participatory way, use interactive learning techniques, and are sensitive to gender differences, increased learning and behavior change are very likely. The extensive knowledge that RSCN gained in their interviews with students and teachers, being responsive to teachers' needs, and the implementation of an ecology-club program with gender-based considerations proved useful in improving the school-based environmental programs in a number of ways.

This process can serve as a model for new educational projects by other organizations in Jordan. Appropriate in both formal and non-formal settings, the methods used here can also be replicated and adapted to other subject areas with relative ease.

In fact, the diffusion of ideas has already begun. Even before this project ended, other divisions within RSCN had used these methods to develop materials to promote tourism at park sites. RSCN education staff used the participatory-workshop model to develop a curriculum on biodiversity and conservation of species in Jordan. The participatory model was much appreciated by USAID, which recommended it to all its projects in Jordan. Subsequently, it has become a standard for other programs and projects across the country. RSCN went on to develop a series of TV spots based on the recommendations in the curriculum—one spot a month for six months highlighting a specific way citizens could conserve water. These spots were shown on prime time national TV and were widely and well received, not only in Jordan but also in neighboring countries where reception of Jordan TV was available.

Most importantly to Jordan, the curriculum represents a vital contribution to creation of a gender-sensitive dialogue about water conservation at home, empowering students and their families to recognize their roles in solving the serious water-shortage faced by their nation.

Beyond Jordan, neighboring Middle Eastern countries with similar water shortages may look to Jordan in the future for fresh ideas on water conservation. This curriculum is already in select schools in Gaza and the West Bank, and Egypt has requested and received copies of the materials.

0883001001884

BOX 15.1

Curriculum Summary

Unit 1-The Water Cycle
This unit highlights the importance of water in nature, its role in the Koran, and its many uses. Background information is provided about water sources in Jordan, the water cycle, dams, and the concept of water as a publicly owned commodity. Collection and use of water over time is outlined. The impact of population growth and urbanization on the water supply is described.

Activity 1: Exploring How Water Evaporates
Summary: Put equal amounts of water in two bowls or glasses and cover. Place one bowl in the sun and another in the shade and compare what happens.

Activity 2: Constructing a Small Replica of the Water Cycle
Summary: Put soil, water, and seeds into a covered jar to see if and how the plants grow. In each case, first write down what you expect to see, then perform the experiment and record and discuss what you actually observed.

Unit 2-Household Water Use
This unit reinforces the importance of water and its scarcity in Jordan and throughout the Middle East. These concepts are then brought into the home environment by presenting several ideas for saving water in the bathroom, kitchen, and elsewhere in the house.

Activity 1: Water-Use Survey
Summary: Conduct a survey at home with your parents to measure how much water your family uses. Record how much water you and your family use for brushing teeth and bathing. Next, determine how much water is used for "female" household tasks such as washing the dishes and the clothes. Determine the amount of water used for "male" tasks such as washing the car and shaving. Discuss with your family ways they could decrease water consumption.

Activity 2: Water-Meter Reading
Summary: Observe the teacher's demonstration of how to read a water meter. Next, check your water meter at home, or look at your family's water bills if they purchase water, to calculate the cost of water to the family each month. Compare and contrast the water bill from the month prior to implementing the water-saving measures you have learned at home, and the month after implementing these measures.

Activity 3: Saving Water When Brushing Your Teeth
Summary: Calculate how much water can be saved when the tap is not left running while you brush your teeth. Multiply this amount by the number of people in your family to determine the total savings for your household.

Unit 3-Aquifers and Surface Water
This unit introduces the concept of underground (aquifer)

and surface water. Student discussion centers on the issues raised by a hypothetical conversation between two friends—Hamid and Hamed—from different parts of Jordan. They talk about their surrounding areas, both of which have become drier in recent years, and how they have seen birds and wildlife disappear. They talk about their fears that water might not be available in the future and discuss the difference between renewable and non-renewable water sources. The importance of ground cover is also stressed in this exercise. In Jordan, ground cover is often removed through gleaning activities, which allows water to evaporate faster and removes habitats of small animals.

Activity 1: Function of Ground Cover in Retaining Moisture
Summary: Put seeds and wood chips in a nylon sock, place it on a wet plate, and observe what happens over the course of two days.

Unit 4-Pollution
This unit addresses surface-water and aquifer pollution: the role that humans play in causing pollution and ways to stop it. Particular emphasis is placed on pollution in the Gulf of Aqaba and its effect on coral reefs. Six suggestions to decrease water pollution, such as minimizing the use of chemical fertilizer and controlling garbage disposal, are offered.

Activity 1: Simulating Water Pollution
Summary: Fill a glass with water, sand, and pebbles. Put ink, red dye, and oil into the glass and observe what happens.

Unit 5-Home Gardens and Irrigation
This unit explores ways to reduce water use in home gardens. Water-efficient plants that can be used in gardens are identified, how compost can slow evaporation of water is demonstrated, and the effects of fertilizer on evaporation levels is examined. The unit shows how to collect rainwater at home for use in home gardens. The advantages of drip-versus canal-irrigation methods for agriculture are also covered.

Activity 1: Comparing Water Use by Three Different Plants
Summary: Obtain three different plants with different-size leaves. Observe how much water is used by each plant over time.

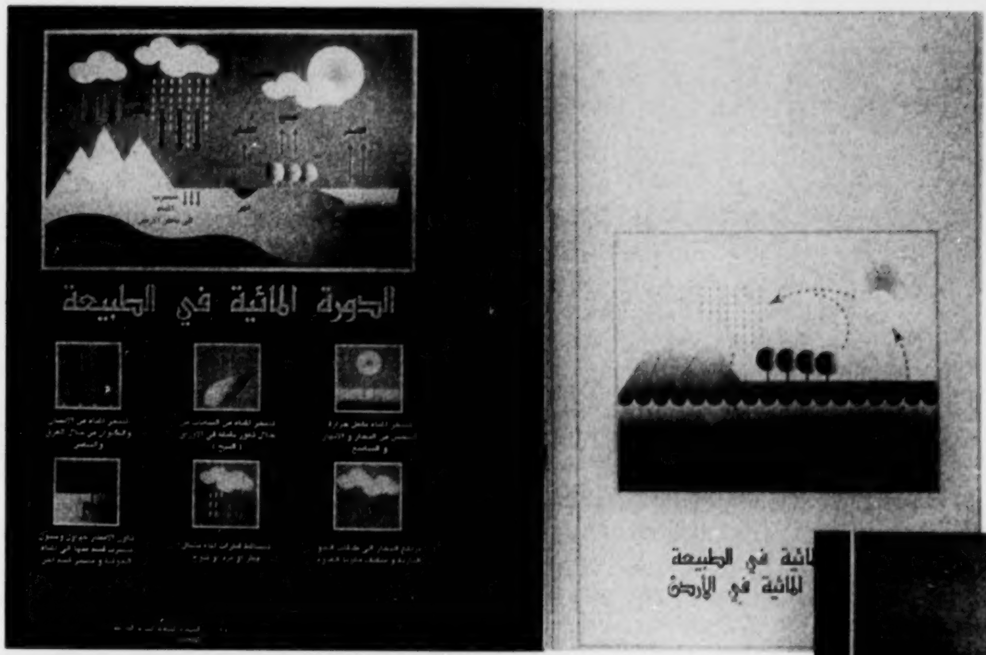
Activity 2: Comparing Waxy Versus Non-waxy Leaves
Summary: Identify two plants, one with waxy and one with non-waxy leaves. Compare transpiration between the two plants over time.

Activity 3: Simulating Canal and Drip Irrigation Techniques
Summary: Water one group of plants with a pitcher of water (canal method) and another group of plants with a water dropper (drip method). Observe over two weeks to see how much water is used by each. Take notes and present your final results.

GreenCOM's approach to curriculum design promoted interactive discussions, hands on experiments. Jordan's Royal Society for the Conservation of Nature developed secondary school environmental youth clubs (eco-clubs) with the help of GreenCOM to introduce students to environmental activities.

BEST COPY AVAILABLE

131


الدورة المائية في الطبيعة
المائية في الطبيعة
المائية في الأردن

The Royal Society's teacher's guides were designed to be colorful and easy to use. (At left) "Water Cycle in Nature," (below) "Water Conservation at Home," and "Teachers Guide to Water Conservation Curriculum."

Royal Society for the Conservation of Nature
Awareness of "Water Issues in Jordan" Project

At the ceremonial opening to the Royal Society for Nature's Curriculum Development Workshop, the USAID/Amman mission director Tom Oliver, gave a talk (left) and panelists discussed the importance of environmental education (above).

ترشيد المياه في الاستهلاك المنزلي

BEST COPY AVAILABLE

Index

References to tables and figures are indicated by italicized page numbers.

A

Adult education, 69–71
Advertising. *See* Media campaigns
Africa. *See also specific countries*
  assessment examples from, 44–46
Agriculture
  complexity of proposed behavioral change, example, 11
  Ecuador, sustainable land use, 50–51, *52*
  Gambia Environmental Awards Scheme, farmer involvement, 109
  irrigation for. *See* Irrigation
  mastery of agro-chemicals' use, example, 14
Assessment, 41–46
  Africa, examples from, 44–46
  compilation of data, 44
  diagnostic and strategic planning, 43
  Gambia Environmental Awards Scheme, 110–111
  interviews, 42–43
  materials development, 43–44
  monitoring and evaluation, 44
  open versus close-ended questions, 43
  overview of process, 41–42
  rapid assessment, 41–46
  reports, 44
  social marketing, 3–4
  verification, 43–44
Attitudes
  behavioral change and, 14
  objective of environmental education, 5
Audience for environmental communications, 5, 81
Awards programs
  El Salvador National Environmental Journalism Awards, 101–102
  Gambia Environmental Awards Scheme, 105–119
Awareness. *See* Public awareness

B

Barriers to behavioral change, 13–15
Baseline research, 48
Behavior, 7–15
  action element, 9
  awareness and, 7–8
  barriers to change, 13–15
  compatibility with cultural norms or current practices, 11
  complexity of proposed change, 11
  confidence and self-efficacy, effect of, 14
  context element, 9
  costly behavior, 11
  criteria for selecting for EE&C interventions, 10–12
  definition of, 8–9
  durability of change, 11–12
  effectiveness of EE&C activities with behavioral approach, 7–8
  elements of, 9
  environmental repercussions of, 7
  environmentally friendly, 9–10
  evaluation tools to assess, 62
  external barriers, 7
  external determinants, 13, 47, 51–52
  formative research on, 48–51
  generalizing from one change to another, 11
  immediate and obvious consequences of, 10–11
  importance of addressing, 3
  individual versus group behaviors, 12

  - knowledge and information, effect of, 13–14
  - models for behavior-change programs, 7
  - perceptions about outcomes, 14
  - personal values reflected in, 7
  - potential for impact on problem, 10
  - social personal norms, 7, 47
  - social pressures, effect of, 14–15
  - stages of change, *12*, 12–13
  - stakeholders in change programs, 8, 12
  - target element, 9, 47
  - training of professionals and behavioral change, 69–73
- Beneficiary mobilization, 107
- Booklets for El Salvador environmental education, 93–94

C

- Calendar as participatory environmental research method, 20
- Case studies. *See specific countries*
- Celebrity involvement in media campaigns, 15, 80
- Ceremonies
  - Gambia Environmental Awards Scheme, 114, 116–118
- Children
  - education of. *See* Education, formal
  - El Salvador newspaper coverage for children, 97–101
  - Nicaragua educational training aimed at, 72
- Citizen advisory groups for corporations, 87
- Classification matrix as participatory environmental research method, 21
- Commitment and women's view of project activities, 28
- Communication campaigns. *See* Media campaigns
- Community characteristics
  - variables in gender analysis, 27
  - women's context of understanding influenced by, 28
- Community mobilization, 107
- Community projects of El Salvadorean students, 94
- Complexity of proposed behavioral change, 11
- Confidence. *See* Self-efficacy
- Conflict matrix as participatory environmental research method, 21
- Consultants
  - need to be gender-sensitive, 30
  - rapid assessment by, 41
- Contextual events, impact of, 64
- Corporations
  - citizen advisory groups, 87
  - mobilization, 107
- Cost of behavioral change, 11
- Cultural norms' compatibility with behavioral change, 11

D

- Definitions
  - behavior, 8–9
  - environmental education, 5
  - formative research, 47–48
  - self-efficacy, 14
- Demographics, 34
- Design and planning, 41–65
  - assessment. *See* Assessment
  - diagnostic and strategic planning, 43
  - evaluation. *See* Monitoring and evaluation
  - gender-sensitive, 24–25, 27–28
  - pre-testing. *See* Pre-testing of media campaigns
  - research. *See* Research
  - social marketing, 4
  - strategic planning, 43, 86–87
- Diagnostic and strategic planning, 43
- Donor agencies and projects in Namibia, 45–46
- Durability of behavioral change, 11–12

E

- Ecuador
  - recycling, 13, 49, 52–53, *53*
  - sustainable land use, 50–51, *52*
- Education, formal
  - El Salvador, 87, 92–94
  - Jordan, 17–18, 26, 121–129
  - women, of, 26, 27, 30. *See also* Gender
- Education, informal. *See* Media campaigns
- Education, nonformal. *See* Nonformal education

EE&C. *See* Environmental Education and Communication
Egypt
  environmental awareness about water, formative research on, 53–55, *55*
  irrigation waterflow, communication with government officials about, 18, 25
  media campaign, 79, 80
  pre-testing of media campaigns, 4, 58–59, 80
El Salvador
  community environmental projects of students, 94
  environmental communication, 33–37, 50, *50*, 76
  environmental education guides, 92
  formal environmental education, 92–94
  fuel wood, use of, 10, 24
  Guanaquin, newspaper coverage of environment for children, 100–101
  media campaigns for environmental awareness, 96–102
  multi-disciplinary team of technicians, 95
  national conference (National Environmental Education Encounter), 102–103
  National Environmental Education Policy, 102
  National Environmental Education Strategies, 87, 91–103
  National Environmental Journalism Awards, 101–102
  national parks, training of specialists in environmental interpretation, 96
  national teacher in-service program, 76, 93
  newspaper coverage for children, 100–101
  training of NGO technical staff, 95–96
  university environmental education, 94–95
Empowerment, 4, 5
  feedback from professionals in training programs, 75
Entertainment industry involvement in media campaigns, 80
Environmental communications, 4–5
  See Environmental Education and Communication
Environmental education, 5–6
  El Salvador's National Environmental Education Strategy, 87, 91–103
  Namibia programs and centers, 45–46
Environmental Education and Communication (EE&C)
  assessment, 41–46. *See also* Assessment
  behavioral change, 7–15
  conduct of activities, 69–77
  design and planning, 41–65
  environmental policies and involvement of people, 85–88
  evaluation, 61–65
  formative research, 47–56
  gender analysis, 23–31
  media campaigns, 79–84
  participatory development, 17–22
  pre-testing, 57–59
  systems thinking, 33–38
  training, 69–77
Environmental policies
  El Salvador's National Environmental Education Policy, 102
  fostering dialogue, 87
  Gambia, 105
  gender analysis and, 29, 30
  involvement of people, 85–88
  public awareness, 87
  public participation, 87–88
  shaping, explaining, and implementing, 86
  strategic planning, 86–87
Environmentally friendly versus unfriendly behavior, 9–10
Evaluation. *See* Monitoring and evaluation

F

Feedback from behavioral change, 10–11
Field testing of solutions, 10
Formative evaluation, 61–62
Formative research, 47–56
  baseline research distinguished, 48
  behavioral focus, 48–55
  central themes, 49–50
  Ecuador recycling case study, 52–53, *53*
  gender considerations, 55–56
  stakeholder participation, 48
  steps, 48–50

G

- Gambia Environmental Awards Scheme, 105–120
  - assessment, 110–111
  - ceremonies, 114, 116–118
  - communication about, 106, 109–110
  - community leader involvement, 110
  - competition categories, 108, *109*, 112–114
  - coup d'état's effect, 106, 115
  - decentralization, 106, 108
  - Divisional Task Forces, 107–108, 110–111
  - environmental policy development, 105–106
  - farmer involvement, 110
  - feasibility, 106
  - follow up, 119–120
  - Gambia Environmental Action Plan (GEAP), 105
  - launching of, 108–110
  - lessons learned, 115
  - limited facilities, 119
  - limited financial resources, 106, 119
  - mobilization, 106–107
  - objectives, 107
  - problems to overcome, 115, 119
  - school administrator involvement, 110
  - spin-offs and extensions, 115, 119
  - Steering Committee, 107, 111
  - teacher involvement, 110
  - timing of, 106
  - transportation problems, 115
  - user group involvement, 110
  - winners, 111–114
- Gender, 23–31
  - changes in environmental knowledge, attitudes and behavior, impact evaluation, 29–30
  - commitment of women to project, 28
  - community norms, importance of, 28
  - community/societal characteristics as variables, 27
  - considerations, 27
  - design and implementation of program based on, 27–28
  - EE&C programs and, 24
  - environmental policies and, 29, 30
  - equity, impact evaluation, 29
  - follow-up studies, 30
  - formative research, 55–56
  - GreenCOM consultants' need to be gender-sensitive, 30
  - household characteristics as variables, 27
  - information from women, ways to present, 19, 25, 31
  - information gaps, examples, 26
  - Jordan, education about water conservation, 122–124
  - language skills of women, 27
  - literacy skills of women, 27–28
  - measures of impact, 28–29
  - monitoring and evaluation, 28–30
  - Morocco, waste management problem-solving, 31
  - needs assessment and, 24–25
  - participation by women, impact evaluation, 29
  - personal characteristics as variables, 26–27
  - practical gender needs, 23, 26
  - pre-testing of media campaigns, 28
  - project design and, 24
  - strategic gender needs, 23, 26
  - timing of project activities, importance of, 28
  - variables in, 25–26
- Generalizing from one behavioral change to another, 11
- Government mobilization, 107
- Governmental agencies
  - assessment in Namibia, 45–46
  - assessment interviews to include, 42
- GreenCOM
  - consultants. *See* Consultants
  - purpose of, 3
  - USAID Environmental Education and Communication Project. *See* Environmental Education and Communication (EE&C)
- Group versus individual behaviors, 12
- *Guanaquín*. *See* El Salvador
- Guided practicum, 74

H

- Historical matrix as participatory environmental research method, 21

- Historical profiles as participatory environmental research method, 20
- Household characteristics as variables in gender analysis, 27

I

- Implementation
  - participatory development and resources, 21
  - social marketing, 3–4
- Incentives, 4
- India, women's availability for project activities, 28
- Individual versus group behaviors, 12
- Interviews during assessment phase, 42–43
  - Namibia, example, 46
- Intra-household research, 25, 26
- Irrigation
  - communication with government officials about, 18, 25
  - participatory development techniques, 19–21

J

- Jordan, educational curriculum for water conservation, 17–18, 121–129
  - development of curriculum, 123–124
  - eco-clubs, 17, 123, 126
  - future applications of participatory model, 125
  - gender-sensitive analysis, 26, 122–124
  - interactive nature of curriculum, 123–125
  - Royal Society for the Conservation of Nature (RCSN), 122–123
  - success of curriculum, 124–125
  - summary of curriculum, 125, 128–129
  - teacher training, 123–124, 127
- Journalists and reporters. *See* Media campaigns

K

- Knowledge
  - evaluation tools to assess, *62*
  - objective of environmental education, 5

L

- Language skills, women's level of, 27
- Literacy, women's level of, 27
- Loss of study participants, impact of, 64

M

- Madagascar
  - gender analysis and effect of employment opportunities for men, 23
  - involvement of people in Environmental Action Plan, 87
- Malawi's National Environmental Education Strategies, 87
- Mapping as participatory environmental research method, 19–20
- Marketing. *See* Media campaigns
- Mass media. *See* Media campaigns
- Matrices as participatory environmental research method, 21
- Maturation of study participants, impact of, 64
- Media campaigns, 79–84
  - advertiser's model, 82, *82*
  - assessment of program's effectiveness, 43
  - audience, 5, 81
  - development of campaign, 80–82, 97
  - educator's model, 82, 82
  - Egypt, water conservation case study, 53–55, *55*
  - El Salvador, environmental awareness, 50, 96–103
  - entertainment industry involvement, 80
  - Gambia Environmental Awards Scheme, 106, 109–110
  - gender-sensitive pre-testing, 28
  - goal, 5, 81
  - implementation of, 82, 97–99
  - list of sample channels, *80*
  - medium, 5, 81
  - message, 5, 81–82
  - monitoring and evaluation, 82
  - "news," 79–80, 96
  - paid and public service advertisements, 79
  - pre-testing. *See* Pre-testing of media campaigns
  - Sandman's model, *83*, 83–84

  theoretical models underlying, 82–84
  types of, 79–80
Medium for environmental communications, 5, 81
Message in environmental communications, 5, 81–82
Monitoring and evaluation, 61–65
  assessment of EE&C material, 44
  baseline measures, 62
  contextual events, impact of, 64
  desired results, 62
  formative evaluation, 61
  gender-sensitive, 28–30
  increased experience of evaluators, impact of, 65
  loss of study participants, impact of, 64
  maturation of study participants, impact of, 64
  media campaigns, 82
  modification of instruments, impact of, 65
  potential sources of error, 64–65
  pre-test and post-test studies, 63–64
  repeated testing, 64–65
  research design, 62–65
  social marketing, 4
  summative evaluation, 61
  tools, 62, 62
  training, evaluation of, 74–76
Morocco solid waste collection, participants in re-engineering, 18, 19, 31

N

Namibia, assessment example from, 45–46
National Environmental Action Plans (NEAPs), 86–87
National parks in El Salvador, training of specialists in environmental interpretation, 96
Needs assessment
  EE&C strategies, 10
  gender-sensitive, 24–25
Nepal forests, presentation of issues to government officials, 18
News reporting. *See* Media campaigns
Namibia, assessment in, 45–46
Niamey government land reform and women's rights, 30
Nicaragua
  evaluation of materials on sea turtles, 61
  training of Ministry of the Environment and Natural Resources, 72–76
Nonformal education, 6, 30
  El Salvador, 92, 95–96
Nongovernmental organizations (NGOs)
  assessment interviews to include, 42
  El Salvador, educational programs in, 91, 94–96, 103
  Jordan, educational curriculum on water conservation, 17–18, 121–123

O

"One-group pre-test post-test design," 63
Open versus close-ended questions, 43
Open versus closed systems, 34–35

P

Participatory development, 17–22
  analysis and suggested solutions, 21
  control of development agenda, 22
  courtesy calls as first step, 18
  development professional taking part in daily life of villagers, 18–19
  effectiveness of, 22
  environmental policies, 85–88
  evaluation tools to assess, 62
  framing of research questions, 22
  leveling the field, 19
  mapping, 19–20
  matrices, 21
  number of participants as problem, 22, 42
  objective of environmental education, 5
  pie charts, 21
  potential pitfalls, 21–22
  ranking, 21
  research methods, 19–21
  resources for implementation, 21
  seasonal calendars, 20
  stakeholders, involvement of, 17, 48
  time-line/historical profiles, 20

  tools that visualize and do not depend on literacy, use of, 19
  transect maps, 20
  trend lines, 20–21
  types of, 17–18
Personal characteristics
  variables in gender analysis, 26–27
Philippines
  environmental policy dialogue, 87
  gender-sensitive analysis, 26
  media campaign, 80
Pictorial conventions. *See* Visual methods to present information
Pie charts as participatory environmental research method, 21
Planning. *See* Design and planning
Policies. *See* Environmental policies
Political mobilization, 106
Pre-testing of media campaigns, 57–59, 82
  Egypt case study, 4, 58–59, 80
  El Salvador case study, 35
  gender-sensitive, 28
  questions for, *58*
  social marketing, 4
Press coverage. *See* Media campaigns
Professional development. *See* Training
Public awareness, 87
  behavior and, 7–8
  objective of environmental education, 5
Public participation, 6
  See Participatory development
  environmental policies, 87–88
Public-private partnership, 34
Public service advertisements, 79

R
Radio, use in El Salvador environmental education, 93
Ranking as participatory environmental research method, 21
Recycling
  behavioral change and, 7, 8, 13, 49, 52–53, *53*
  gender differences, 55–56
  media campaign's effectiveness, 84
Repeated testing, 64–65
Reports for assessment purposes, 44
Research, 47–56
  baseline research, 48
  behavioral focus, 48–49
  central themes, 49–50
  formative research, 47–56
  gender considerations, 24–25, 55–56
  intra-household research, 25, 26
  participatory environmental research methods, 19–21
  stakeholder participation, 48
  steps for formative research, 48–50
Rural residents in El Salvador environmental communication case study, 24, 50, *50*

S
Sandman's environmental communications model, *83*, 83–84
Schools. *See* Education, formal
Sea turtles, 61
Self-efficacy, 14, 73
"Separate sample pre-test post-test design," 63
Sex-based differences. *See* Gender
Skills as objective of environmental education, 5
Social marketing, 3–4
  See Behavior
Social mobilization, 106–107
Social norms and social pressure, 7, 70
  effect on behavioral change, 14–15
Societal characteristics
  variables in gender analysis, 27
  women's context of understanding influenced by, 28
Stakeholders
  behavioral-change programs, 8, 12
  interviews during assessment phase, 42
  involvement missing, 33
  participation by, 17, 48, 87
  research participation, 48
Strategic planning, 43, 86–87
Study tours as training activities, 73, 75
Summative evaluation, 61
Systems thinking, 33–37

  - components of system, 34
  - coupled motion, 34
  - energy, 35–37
  - growth and form, 36
  - open versus closed systems, 34
  - principles of, 34–37
  - structure's limits on growth, 37
  - subsystems and supra-systems, 34, 35
  - theoretical background of, 33

T

- Tanzania professional training programs, 76
- Teacher involvement in Gambia Environmental Awards Scheme, 110
- Teacher-training. *See* Training
- Time-lines as participatory environmental research method, 20
- Timing
  - Gambia Environmental Awards Scheme, 106
  - women's availability for project activities, 28
- Tours as training activities, 73, 75
- Training, 69–77
  - activities, 73
  - adult learners, 69–70
  - behavior change principles, 70–71
  - burning to clear land in Andes, 8
  - characteristics of programs for training facilitators, 71
  - choices offered as part of program, 74
  - cognition principles, 70
  - composite model, 71–76
  - designing relevant training, 72
  - environmental education training of professionals, 6, 69, 93, 95–96
  - evaluation of, 74–76
  - guided practicum, 74
  - involvement of participants, 71–72
  - ongoing support, 75–76
  - practice and participation in activities, 72–74
  - teacher training, 76, 93, 123–124
  - team building, 72
  - work-related issues, 71
- Transect maps as participatory environmental research method, 20
- Transportation problems in Gambia Environmental Awards Scheme, 115
- Trend lines as participatory environmental research method, 20–21

U

- UNESCO'S International Environmental Education Programme, 76
- United Nations Intergovernmental Conference on Environmental Education (Tbilisi, Georgia), 5
- University environmental education in El Salvador, 94–95
- Urban dwellers in El Salvador environmental communication case study, 50, *50*
- USAID Environmental Education and Communication Project, xv. *See also* Environmental Education and Communication (EE&C)

V

- Verification of EE&C activity, 43–44
- Video
  - as method to present information, 18, *25*
  - El Salvador, environmental education, 94
- Visual methods to present information, 19
  - women's level of understanding, 27–28

W

- Women. *See* Gender

Z

- Zimbabwe training programs for professionals, 75

Human knowledge doesn't always help the environment. Even positive attitudes towards the environment don't always translate into environmentally friendly behaviors. But human *behaviors* have an enormous impact—both positive and negative—on the environment. This practical handbook focuses on how human behaviors and practices can create a more environmentally sustainable world. It draws on the experience of GreenCOM, a USAID project that has woven four disciplines—education, communication, social marketing, and public participation—into 30 successful projects in developing countries to influence the human behaviors that affect the environment.

BRIAN A. DAY is the project director for the [illegible] Environmental Education and Communication Project (GreenCOM) at the Academy [illegible]

MARTHA C. MONROE [illegible]

"Extremely helpful handbook for education and communication planners, who have a critical role in building sustainable societies! Full of useful examples that enlighten us on the why and the how of environmental education and communication. Comprehensive and with a strong interdisciplinary focus."

—Yolanda Kakabadse,
President, World Conservation Union (IUCN)

"This handbook oozes with the environmental education experience of the authors. I found the national case studies in the latter part particularly engaging."

—Lester Brown,
Worldwatch Institute

"By bringing together the wide experience of GreenCOM projects around the world—first extracting the theory, then explaining the tools, and finally showing how it all comes back together in field projects—this book is unique in its broad coverage and depth. It will certainly enrich many programs."

—Kartikeya V. Sarabhai,
Director, Centre for Environment Education, India

BEST COPY AVAILABLE

USAID

AED

GreenCOM